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ABSTRACT

The COPED project linked behavioral scientists and educators in various geographical regions to school systems in the same regions for the purpose of planning and promoting change, understanding the processes by which change occurs, and evaluating types of change efforts. The enterprise evolved into four major strands: (1) the conceptual effort, (2) the development of variable change strategies or interventions, (3) the development of sensitive instruments to advance the understanding of school systems and to document change efforts, and (4) the development and maintenance of an interuniversity, interschool system consortium. Abstracts of some of the research are included in this volume. (Related volumes are EA 003 045 and EA 003 046). (Author)

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VOLUME I

RESEARCH OUTCOMES
COOPERATIVE PROJECT FOR EDUCATIONAL DEVELOPMENT

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RESEARCH OUTCOMES

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INTRODUCTION

Dale G. Lake

The COPED project linked groups of behavioral scientists and educators in different geographical regions to school systems in the same regions for the purposes of (1) planning and promoting change, (2) understanding the processes by which change occurs, and (3) evaluating different types of change efforts.

The COPED enterprise evolved into four major strands of work activity. The first, which began many years before the 1965 funding and has continued since, was the conceptual effort. This effort is exemplified by, but not exhausted in volumes in which were described many of the important issues in changing; such as, resistance to change, special properties of schools, the nature of organization development for schools, knowledge utilization and strategies for changing.

A second strand of the work effort was the development of variable change strategies called interventions. In this effort, T-groups were tried, survey feedback workshops were held, planning and managing specific change efforts such as computer assisted instruction occurred, new roles for change management were created and supported and networks of such roles were developed across regions and finally, many specific efforts of personal consultation were tried.

The third strand of the COPED effort consisted of developing sensitive instruments which would aid in the understanding of school systems and in the documentation of change efforts.

Finally, the development and maintainence of an inter-university, inter-school system consortium was, in and of itself, an important effort. Many ways were found to remove the barriers of academic disciplines which keep university faculty isolated and irrelevant and to remove the barriers which keep the university professor isolated from public school persons.

What follows is an overview of these work efforts.

OVERVIEW

Morton Shaevitz

Planning

In September, 1964, National Training Laboratories, then associated with the National Education Association, brought together a core committee on education. The group included Ronald Lippit of the University of Michigan, as Chairman, Paul Buchanan of Yeshiva University, David Jenkins of Temple University, Matthew B. Miles of Teachers' College, Columbia University, Donald Orton of Leslie College, Herbert Thelen of the University ofChicago, and GoodwinWatson of Newark State College, with Dorothy Mial as convenor and coordinator for National Training Laboratories. This committee planned an inter-university consortium to explore the concepts of planned change and help institute-planned change efforts in a number of school systems throughout the country.

To implement the plans, a research proposal to the U.S. Office of Education was drafted by Dr. Max Goodson, NTL Fellow then on leave from Boston University. The final proposal submitted to the U.S. Office of Education was a blend of the ideas of many sources, including those of the core committee, Dr. Goodson, and Drs. Jung and Lake, then graduate students, but soon to become integral members of the COPED organization.

The year 1965-66 was given to planning at both the inter-regional and regional levels. At the inter-regional level, an executive committee was formed, mostly made up of the original drafter of the proposal. It met to plan ways of allowing collaboration and joint planning between regional centers while assuring each regional center a degree of individual autonomy.

To facilitate the research effort, it was decided that large-scale data gathering, involving the use of questionnaires, would be instituted at periodic times. A measurement committee was formed and spent the first six months reviewing more than 400 instruments developed to assess various dimensions of school system operations. The final set of assessment instruments required responses from fifth grade students, eleventh grade students, superintendents of school systems, principals and teachers. This committee dealt with a series of related research issues: time of sampling; sample size; who collects data, university or school personnel; data reduction; data analysis; data sharing, and the integration of quantified and thematic materials.

At the regional level, each center had to make several major planning decisions: 1) how to intervene, 2) how to get staff, 3) how to train staff, 4) how to identify and choose school systems to work with.

Each center chose its own method and focus for intervention. Michigan's focus was that of learning atmosphere, and there was heavy emphasis on working with teachers and principals and the training of internal change agents. Chicago decided to intervene in a single school district and to focus intensive work on an internal steering committee. New York was most interested in the administrative structure of the school system and how it affects change. Boston's focus was that of human relations training at different levels of intensity for teachers and administrators in different school systems.

As the methods and focuses for intervention were decided, it became necessary to identify staff members who would help carry out the project. Fortunately, some of the institutions involved in the project were richly endowed with personnel in the areas of education and applied behavioral science. Including the staff turnover that occurred during the three-year period, the personnel involved had formal training in education, social psychology, educational psychology, clinical psychology, history, statistics, mathematics, anthropology and sociology.

Most of the staff people chosen were advanced graduate students or junior faculty members in the geographic area. Rarely were specific individuals recruited to take a particular role. While this proved to be the most helpful way of identifying staff people, it meant that the new staff in most centers had more than one job. At times over the three-year period of the project, staff resources were severely strained. Individual staff members had to deal with conflicting levels of commitment.

Many of the new staff members had impressive academic qualifications and a commitment to the goals of the COPED project, but lacked the necessary skills, particularly in the area of human relations training and in the use of applied behavioral science techniques developed by National Training Laboratories. For 20 years, National Training Laboratories had been conducting a summer behavioral science internship program. During the summers of 1966 and 1967, additional programs were developed, partially in response to the demands of the COPED project. The Educational Intern Program was developed primarily for those who would be working with ongoing educational systems. A parallel program, the Educational Consultants Project, was developed for those in school systems who might be working on internal planned change efforts and who would be collaborating with an outside intervention team. These programs continue and are now self supporting. Each regional center had to identify and decide which schools it would work with. While multiple methods for identifying and involving school systems were developed, in almost all cases the following criteria were used: 1) reasonable geographic proximity to university centers that would be involved in the project, 2) concern with current functioning and a desire to modify practices, 3) a willingness to support--either by releasing personnel or by hiring new personnel--individuals to work with the university. teams, 4) a willingness to support a limited number of individuals for training in the Educational Consultants Program, 5) and finally a willingness to participate in the research and to encourage students, teachers, and other employees to cooperate with the data gathering activities.

By the summer of 1966, almost all regional centers had identified the school systems that it planned to work with and were in the final phases of building their internal staffs. A number of individuals were enrolled in summer training programs and the measurement committee was moving toward the completion of a final set of instruments. Initial plans were under way for both coding and reducing the enormous amount of data that would be generated, and there was a general atmosphere of high excitement and anticipation.

Intervention

During the second year, twenty school systems in five different geographic areas began a collaborative effort of planned change, working with university-based behavioral scientists. While the exact nature of the interventions did vary across the country, there was a common thread which characterized the COPED project and, in a sense, distinguished it from the multitude of other programs being instituted in school systems at the same time. The major emphasis was that of changing the processes that characterized school systems as opposed to the content that school systems transmitted--the "how's" of the interaction as opposed to the "what's".

Most changes in education have been characterized by the substitution of one technique for another. For example, the history of reading instruction shows there has been a cycling between the use of the phonic method and the work identification method (look--see). Most recently, the Initial Teaching Alphabet and Words in Color have been added. Very rarely has there been emphasis on the process by which children learn to read, the relationship between students and teacher which affects the student's ability to read, or the affective dimensions which accompany reading.

Likewise, school systems seldom look at the process by which decisions get made. Again and again upper level administrators make decisions which get cancelled out at lower levels where they are to be implemented. In COPED, the focus was almost always on the process by which decisions are made: on the necessity to diagnose what was at the heart of the problem and to examine the possible effects of decisions reached by administrative fiat, majority voting, or concensus.

As the regional centers continued planning, the measurement committee decided, during the summer of 1966, that each regional center would collect data twice during the initial year of intervention and at least one more time during the subsequent year. In addition to the school systems involved in the project, each regional center would collect data from a control school system which would, during the second year of the program, move into an action-collaborative phase.

Centers developed very different strategies for collecting data. In some locals, school system personnel were used. In others, parents were trained to be test administrators. In still others, the university team did the major data gathering itself. The procedures used reflected the types of working relationship that existed between the university people and school systems as well as the particular theoretical biases of the university team members.

Throughout the year, there was a concerted attempt to maintain continued communication between centers and National Training Laboratories. A series of inter-regional conferences emphasized sharing experiences and future plans. The excitement was high. But there was increasing concern about the Office of Education's willingness to support the project. Commitments both to school systems and university personnel had been made tentatively. An air of pessimism increased as the commitments remained tentative.

Difficulties stemmed from two sources. First, although the proposal was clearly described as an action-research program, funding had originally come from the Research Division of the Office of Education. There were increasing concerns that this was an inappropriate funding source. Secondly, while the project was directed toward working with school systems, funds were contracted to universities and this pattern was under serious review.

Between the time that the original proposal was written and the project was actually instituted, some important changes took place. Temple University was unable to participate in the program, but the University of Wisconsin--although funded separately--became affiliated with COPED and worked closely with the other regional centers. At the same time, the Brevard County school system became interested in the COPED project and with the assistance of Dr. Dale Lake, became affiliated with the program. The regional centers were encouraged to select a range of systems to work with. Twelve theoretical possibilities were envisioned as portrayed in figure 1.

FIGURE 1

	URBAN			RURAL		
	Large	Medium	Small	Large	Medium	Small
Rich	I	II	III	VII	VIII	IX
Poor	IV	V	VI	X	XI	XII

It would have also been desirable to have a wide ethnic and racial mix represented. However, neither the dimensions of urban-rural, racial-ethnic achieved what was desired.

The long-range, inter-university COPED strategy was that of gradually shifting responsibility for the initiation of projects and training programs from the university centers to the school systems. Endemic to the program was the training of school system personnel to function as applied behavioral scientists and to use university personnel more in a consultative fashion as they continued change efforts on their own. The impending funding crisis made it necessary for this process of shifting responsibility to take place in a much shorter time than had been originally planned.

Consequently, in the Spring of 1967, school system representatives were asked to take major responsibility for writing a proposal under Title III of the Elementary Education Act of 1965 which would outline their needs for continued training. A new type of consortium linking school systems within regions and cross-regionally was formed for the purpose of continuing the COPED project, but with major responsibility for defining needs, implementing programs, and providing funds shifted from the university centers to the school systems.

Title III proposals had to be directed at the state level. So six different proposals outlining individual regional needs were written. Though different, they showed the same rationale described in this passage from the Michigan proposal:

> "This cooperative project for educational development (COPED) proposes the creation of a consortium of school systems directed toward the mutual support of efforts to improve the process used in bringing about educational change..... (page 9) we believe that there is a critical need in U.S. education today for successful demonstration of creative interaction among school systems and with universities. The value of maintaining uniqueness should not have to conflict with the potential value of interaction. We have begun to see during the first two years of COPED how an increasing use of skills can yield self-renewing behavior within classroom and school faculty groups (July 1967). We now need to explore the ways in which school systems and a consortium of school systems can operationalize these skills (Miles and Lake, 1967) (Jung, Fox and Lippit, 1967). To the extent that a consortium can succeed one can begin to believe that U.S. education on the whole can indeed be capable of a self-renewing endeavor."

Title III regulations demand evaluation of programs but severely limit the proportion of funds that can be spent on such activities. As the Title III proposals were being written to continue the action phase of the COPED program, Dr. Dale Lake, then at Boston University, and Dr. Morton Shaevitz, then at the University of Michigan, wrote a proposal to allow for continued analysis of data collected during the first year of the project and to provide for potential subsequent data collections. The proposal was submitted to Title IV of the Office of Education.

We hoped to carry on the COPED project through two different proposals and two different types of delegate agencies. Unfortunately, however, the state Departments of Education did not share our enthusiasm. With the exception of Brevard County, Florida and Wisconsin, which had already been previously funded, none of the proposals were supported.

While providing verbal support, the U.S. Office of Education did not make a firm commitment. As the Fall of 1967 approached, school systems associated with COPED were forced to use their operational budgets to form many COPED programs. University centers were flooded with a vast amount of data to be analyzed and had no assurance of getting the funds necessary to do the analysis.

We were also faced with the dilemma of trying to assess the effectiveness of various intervention strategies in systems which had been participating in the program for only a year. This was too short a period of time for any significant changes to have occurred.

At the same time, COPED was beginning to attract national attention. Presentations of the program were made at the 1967 American Educational Research Association and the American Orthopsychiatric Association conventions and had received very positive response. Two publications dealing with the conceptual strategies which underlay many of the intervention programs had been published by National Training Laboratories and was receiving widespread distribution. The dilemma faced was how to deal with the conflicting message of productivity and interest coupled with the reality of limited fiscal support.

Analysis, Synthesis, and Findings

When it became apparent that the action phase of the COPED project would not continue, major energies were devoted toward understanding and attempting to answer some questions about school systems as organizations, making maximum use of the learnings from the first two years. The major findings will appear in subsequent sections of this report. It may be worthwhile, however, to mention those intangibles which may not be represented.

A significantly large population of people both within universities and school systems were exposed to many applied behavioral science techniques. Many of the learnings were internalized, and a number of school systems are now going about the process of problem-solving and continuing reassessment of goals and procedures in a more systematic and effective way.

During the five-year period since COPED's inception, the basic foundations of public education have been severely challenged by a rapidly shifting social climate. Teachers have become more organized and demand greater participation in decision making. Parents are no longer content to have distant administrators decide the policy and curriculum of schools. They have demanded that individualized needs of different populations be taken into account. Students of all colors, their ethnic backgrounds, and ages are demanding that they be heard, that their perceptions of what is going on in schools be taken into account when new decisions are made. The message is a clear one: Schools cannot continue making decisions without involving those people intimately related to the decisions and must begin to institute programs of planned change if they are to meet the repidly growing demands of those they serve.

The concept of self-renewal pervaded all the COPED intervention strategies. For school systems, this means a commitment to consistently reassess goals and methods and to change in response to the differing needs of its constituents.

Results

The major physical products derived from the current COPED project follow:

Test Instruments

A planned change effort must involve some initial assessment or diagnosis of the problem. The COPED instruments are revisions of those used in the original study, supplemented by the work of other theorists in the areas of education and planned feedback packages.

The often-quoted ten-year lag between scientific findings and the implementation of those findings in educational programs is due, among other things, to rather ineffective methods of dissemination. Educational journals are most often read by research personnel and rarely by consumers. Those involved in initiating or instituting changes are often untouched by the findings and unable to wade through information currently being produced. If they come across interesting studies, they find it difficult to translate the findings in ways that would modify current practices.

The data feedback packages presented in Volume III are efficient ways of transmitting information. Field testing of the programs and feedback from participants will inform the user of the probable response to a particular way of presenting data. Asking participants to create their own data, raise their own questions about it, and derive their own implications has proved to be an effective way of helping them understand what we have learned about changing school systems.

Diagnosing your school

In 1966, Fox, Luszki, and Schmuck published a pamphlet for diagnosing classroom climates. In Volume III, a companion effort has been made to teach school faculties how to diagnose their building or system's functioning. Procedures and practical examples are presented for diagnosing morale, decision making, problem solving, leadership behavior, and the spread of innovative practices. Such diagnostic ability is considered to be a critical first step in creating a self-renewing system capable of constantly monitoring its own state of well being. We now have relatively inexpensive and objective ways for schools to understand more about their goals, rewards, morale, norms, problem-solving adequacy, leadership styles, influence processes, and innovativeness. The data from the twenty systems are pooled in a single computer bank. In the last year, over thirty school systems have requested these instruments. Procedures have been completed to make these instruments available to the ES 70 network.

Case Studies

The strategic findings have been documented in Volume II. These studies compile COPED's findings of what did and did not facilitate change. They record, for instance, important entry points into school systems, how to develop collaborative relationships between outside change agents, and insiders (and how to maintain such relationships), and they describe how to build a cadre of change agents within schools such that the school systems themselves become more capable of initiating and managing healthy change processes.

Quantitative Studies

Contained in section six of this volume are quantitative studies depicting relationships among such variables as: cohesiveness, executive-professional leadership style, norms, rewards, goals, innovativeness, classroom disorder, problem-solving adequacy, and characteristics of professional staff members, such as age, years in system, tenure status, etc.

Beyond the tangible products contained in this report, COPED can list as its accomplishment the creation of a network of university and public school personnel which still operates. For instance, a quick survey was made in December, 1969, of former COPED personnel and it turns out that everyone of the university persons involved is still actively concerned with change in education. In some cases, the active concern is conceptual, but mostly these university persons are actually involved with schools to manage change processes. As of December, 1969, COPED university personnel were actively consulting with fifty school systems. In addition, training materials and conceptual papers enjoy a much wider dissemination.

Many of the COPED trained change agents are continuing in active change-management roles within their schools or within new school systems. These school system personnel list as their accomplishments the ability to 1) find collaborative alternatives to teacher-administration, teacher-student conflicts; 2) improve in some small ways black-white relations; 3) increase the motivation of teachers to attempt innovations; and 4) to help their colleagues systematically identify and clarify educational goals. Many report anecdotes of teachers and administrators who behave more humanely after in-service work with them.

In education, where product measurement is never done to everyone's satisfaction, COPED stands as one project which has taught university and school system personnel to value each other and their common commitment to educational improvement.

AN OVERVIEW OF THE COPED

CASE STUDIES

Robert H. Luke, Jr.

Introduction

An essential purpose of the COPED project was to apply knowledge and experience with planned change to the complex phenomenon of the public school system. The anticipated outcome was the creation of a change process internal to each system which would allow school staffs to increase their problem solving skills and improve their interpersonal competencies. Operationally, this meant that each school system would develop its own capabilities to:

1. Conduct a continual problem census to bring to the surface organizational problems. This necessitated acquiring skill in various forms of data collection, interpretation, and feedback. It also necessitated the development of a high trust climate so that the data would reflect honest concerns.

2. Design in-service training programs to meet the needs being identified by the problem census. Such problems would have a two-fold payoff. In addition to improving specific problems, they would allow for a continuing program of professional development.

This volume attempts to summarize the results of the project as experienced by the individual systems as documented by the case studies in Volume III.

It has not been possible to specify training interventions, situational variables and outcomes in a way that would allow one to relate outcomes to interventions in a meaningful way because the training program was brought to an abrupt and unexpected end after one year. When it ended:

1. Viable relationships were established between the consultants and the school systems.

2. The project had gained a working degree of acceptance within each system.

3. The several waves of data collection had been completed.

4. A greater degree of upward communication within systems had been established allowing priority problems to be aired.

5. Change agent teams had been formed within each system and most had received some initial training from the consultants.

6. Some systems had received feedback from the initial data collection wave and plans had been finalized for providing feedback to the other systems.

7. The regional consultant teams had finalized their data collection and training strategies.

8. The consortium had a year of working experience behind it and was operating effectively.

In other words, the project ended (the funds stopped) when both clients and consultants were in a state of readiness to engage in an in-depth, system-wide program of planned change.

In the case studies, the four regional centers describe the way they intervened with school systems. No attempt was made to devise a way of reporting to be used by all centers, and each has prepared its report in the form it considered best for describing its experiences and conclusions. What is provided here is detailed information about the different staff's dilemmas, their impressions of how they got into the dilemmas and what they think they learned.

Theories and People

At the risk of overemphasizing the obvious, one of the major problems, and at the same time the most creative challenge, was implementing theories and strategies of planned change in the real life organization of the school. The two COPED volumes produced during the first year of the project, tried to articulate proposed relationships between significant variables, identifying potential points of resistance to be reasonably expected from the clients, and describing the major structural components of a school system. In addition, each of the regional teams did a comprehensive job of designing strategies which would optimize the results of their interventions.

The initial effort of the Michigan team was to train teachers and principals in problem solving and interpersonal competency skills. They in turn were to train others in the system as a way of creating maximum dissemination of the consultant resources and beginning the process of developing the systems' internal training resources. In addition, a special program of diagnostic skill training was planned for those in the systems who had cross-building responsibilities.

While Michigan's strategy began in the classroom with a view to moving from there to higher levels, New York's strategy was to begin with the upper administrative echelons and work down. Boston selected the principalship as the point of initial entry. All strategies shared a commitment to eventual total involvement of the system.

The differing strategies were seen as having a high experimental potential. They allowed the consultants to test previously untested hypotheses of planned change. In the process of implementing theories and strategies, the consultants had to involve and obtain the approval of the power elements, ellicit the involvement and interest of people who would serve as internal change agents, establish a working and trustful relationship between themselves and their clients, and maintain the effectiveness of their own consultant team.. These responsibilities represented the realities with which any theory of planned change must cope.

Introducing COPED to the Client

The first need was to identify three-to-five systems in each region which would participate as clients. In practically all cases, COPED took the initiative. Both Michigan and New York invited 20-30 superintendents from nearby systems to a one-day meeting. The purpose of the meeting was to introduce them to the concepts and purposes of the project and then allow superintendents to indicate their degree of interest in committing their system. They could indicate their degree of interest in committing their system. They could indicate a willingness to become a participating system, to serve as a control system in which data would be collected but no training would be done, or to show no interest.

Both meetings were very similar. COPED staff members presented short lecturettes explaining the theory and conducted several training activities to give participants a sample of the training aspect of the program. At the end of the meeting, participants were asked to fill out a card indicating their degree of interest. The COPED staff then took the responsibility of contacting those systems who expressed an interest and determining which systems would finally be selected.

The systems in the Boston region were recruited individually. In Franklin, the superintendent was actively interested in the goals represented by COPED and decided to participate following a meeting with the Boston project director.. The Jefferson system was already engaged in a consultant relationship with Boston University and saw participation in COPED as an effective way to continue the consultant relationship. The Superintendent in Hancock had established an internal committee to propose in-service training ideas. The committee's suggestions were very similar to the goals of COPED, and on the basis of this similarity, the superintendent agreed to participate. The COPED-Hamilton contract was negotiated by the superintendent and the project director.

The Superintendent: Choosing the Internal Change Agent Teams

In practically all the systems, involvement of the superintendent was crucial. Regardless of a team's eventual strategy, the first contact with the system came through the superintendent's office. The involvement of the superintendent, in many instances, was a mixed blessing for the COPED staff. While his approval was needed to gain access to the system, the way in which he made decisions and how he was perceived by subordinates in the project often had a direct bearing on the direction the project took in his system.

Typically, the superintendent took an active role in deciding who would serve as members of the internal change agent team. The superintendents chose the teams in a similar fashion - without involving those people significantly affected by the decision in the decision-making process. The internal teams were often chosen by the superintendent, his immediate staff, and one or two members of the COPED staff. This resulted in mistrust of the superintendent and the COPED staff, which was seen as a 'tool' of the administration.

This mistrust is noticable in the Boston reports on Franklin, Jefferson, and Hancock. At Franklin, the mistrust was strong enough to prevent the appointed team from functioning at all. In Hancock and Jefferson, on the other hand, members of the change agent team (mostly principals) were selected by the superintendent with little information being communicated to the teachers. While the change agents themselves were enthusiastic, the non-involvement of their teachers created some initial handicaps to the change agents' efforts.

In New York, this issue of mistrust is particularly noticeable at Buckley where the superintendent called a one-day training meeting to introduce selected teachers and principals to COPED. The superintendent's initiative created a good deal of mistrust toward COPED on the part of the participants who referred to the meeting as "St. Valentine's Day Massacre". The situation was further complicated by a change in superintendents shortly thereafter. The new superintendent is described as more innovative and direct than the outgoing superintendent. He participated in an off-site training session designed to develop a more trustful attitude toward COPED. His administrative style and the off-site workshop were seen as the major reasons for Buckley's decision to continue with COPED.

The same issue arose in Michigan but apparently was not felt as strongly. But, several of the case studies report instances of teachers feeling either a direct or indirect pressure from the principals to attend meetings and feared that COPED was an administrative tool being used to evaluate their classroom performance.

When those affected by the decision about internal change agent teams were involved in the decision-making process, there wasn't so much mistrust of COPED.

In Comstock, the only case study of a single school building, the principal and one teacher were involved with COPED in another system and wanted to try it with their school. The principal asked for faculty members who wanted to participate in a one-day introductory micro-lab. From the beginning the faculty was involved and subordinate-superior relationships were open to question. This was seen as a good start. As a result faculty meetings are described as more open and productive. In the case of Old City, an advisory committee was formed with the involvement of several levels of personnel in the system and this committee helped others in the system trust COPED.

One conclusion from the difficulties involved in selecting members of the change agent teams would seem to be that training actually begins upon first contact with the system. In simplified terms, the COPED project was designed to change highly centralized decision making to more decentralized decision making, low levels of trust to higher levels of trust, inflexible downward communication to more flexible two-way communication; to mention only three targets. In many cases, COPED was introduced into systems where the norms operating were those COPED wanted to change. This seems to have created resistance over and above what would be expected under the best of circumstances. From the perspective of the consultants, the problems of the systems were thrown into sharp relief, which undoubtedly facilitated the problem census. From the perspective of the clients, however, COPED did not appear initially as an innovative change mechanism.

The superintendent's involvement in the project, other than his involvement in choosing the internal change agents, had an important effect in the project. The Detroit and Buckley case studies show the dramatic effect that a change in superintendent can have on a project of this kind.

Client-Consultant Relationship

Of obvious and crucial importance to a project of this kind is establishing and maintaining a working relationship between the consultants and the systems. As seen by the COPED staff the relationship could be divided into three phases: (1) Gaining access to the system (which, as we have seen above, presented certain difficulties); (2) Collaborating with the system through internal change agent teams, with these teams taking an increasingly active role in the training design and its execution; (3) Withdrawing, when the systems were ready to continue on their own with a minimum of outside consultant help.

1. Gaining Access - The majority of participants from each system did not encounter the COPED staff until the first official training activity. The case studies of these events report that the client-consultant relationship was an important issue. The COPED staff and the participants had to spend some time working through feelings of mistrust and suspicion before the training could really begin to take hold.

2. Collaborating - In all cases, representatives from each system were active in the planning process with the consultants. The report on Old City details some of the issues involved in collaborating. Buckley, Livonia, Brooklyn, and Jackson provide

a historical description of the collaborative relationships. The latter three cases report that a noticeable degree of strain was evident as the project moved from data collection to training interventions. The change agent teams within each system had a great deal of control over the use of the research instruments. As problem-solving training was to begin, the internal teams began to feel less influential and reported feeling controlled rather than collaborative. Here, for the first time in the relationship, the specialized resources of the university consultants were needed. They had to help re-examination of the relationship between themselves and the internal teams. In the case of Michigan, the result seemed satisfactory to both parties. Michigan COPED consultants were even called in for non-COPED projects and one by-product of the project was a bettering of the overall relationship between the university and the school systems.

3. Withdrawing - Given the early termination of funds, this phase of the relationship came about earlier than anticipated. However, several of the studies, Detroit in particular, indicate that some systems were able to continue the program with a drastic reduction in consultant help.

Reactions to the Data Collection

A major part of the COPED strategy in each region was the use of research instruments. This is discussed in Lake's and Callahan's chapter on research methodology. The case studies from New York and Boston almost unanimously report feelings of frustration and confusion over the data collections. For many, it represented an uninvited intrusion into the classroom or administrative council. For others, it was simply a foreign element to be dispensed with as quickly as possible. In many instances, negative reactions to the data collection were probably part of the overall reaction directed toward the COPED project in the early stages. Systems began to look much more favorably on data collection as they received feedback from previous collections and gained a clearer understanding of research findings within their own system and the ways in which data collection can serve a useful diagnostic function.

The COPED Consortium

Also included in Volume II is a description of the workings of the inter-university consortium which coordinated and administered the COPED project in the several regions. The development and maintenance of the consortium is itself a major product of the project. It demonstrates the feasibility of utilizing multiple and specialized resources in the service of a major project. One interesting thing about the consortium case is that it experienced many of the same problems as the school systems. Some of the major issues included maintaining the autonomy of each team yet developing a single project rather than five regional COPEDs, trying to establish a model of decentralized decision making rather than operating by administrative fiat, developing open channels of communication, etc.

Summary and Conclusions

To leave the reader with the impression that COPED was one long series of serious problems with few results would be erroneous. It is true that COPED does not represent the traditional success story, i.e., all the research hypotheses were not fully validated, the participating systems, as has been noted above, were left more in a state of readiness than demonstrable improvement. Though it is true that with more time these would have been possible, the experience has proven to be quite valuable. What we have is an account of the problems encountered when the worlds of applied behavioral science and public education meet. While it takes time and creates problems, it is by no means an impossible marriage. Indeed, if there is one common thread running through the case studies, it is a glimmer of potentiality once the client-consultant relationships had been established and persons in the system have developed a commitment to educational improvement.

IMPROVING THE PROFESSIONAL CLIMATE
OF THE SCHOOL

A major concern of the COPED project from its inception was to develop and field test procedures and materials that might be helpful to school staffs as they worked together toward an improved professional climate. It was envisioned that the results from the research activities, as well as the organization and development of theoretical guidelines and models, would find their way into the day-by-day school operation. The Michigan COPED team in particular focused its efforts upon action research. From the outset, data collection activities were presented as "means to an end" of helping the collaborating systems move toward self-renewal.

The interests in application of the results of the COPED research effort were channeled into two specific projects. A pamphlet was designed to assist the school administrator and/or members of his faculty to use some of the procedures for diagnosing the professional climate of the school. Also, an "instrument package" of sequenced in-service staff development activities was developed. It can be a stimulus for school staff in-service education and problem-solving activities.

Soon after the development of the COPED instrument package, requests began to come to staff members from school systems around the country for permission to use all or parts of the package. This interest increased. The staff took the position that general release of the instruments prematurely would be a disservice. Without guidance in their utilization and interpretation, and without more careful editing and validating as a result of their use within the project, their promiscuous use might result in unfortunate misunderstandings and repercussions.

The staff decided to move ahead in two directions simultaneously: On the one hand, effort was directed toward editing, validating, and standardizing the instrument package; this would be made available to the professional researcher or sophisticated practitioner. On the other hand, using the instruments as models or prototypes, effort was also directed toward writing a guide book for the practitioner who was interested in gathering data about the current situation in his school to begin a problem-solving effort.

The results of these efforts are presented in this report. The first draft of the manuscript, Diagnosing the Professional Climate of Your School, (Volume III) forms the first section of this chapter. As the current final report to the Office of Education on the COPED project is going to press, active work is going on by the authors of the manuscript to refine it, add two more chapters ("How We Utilize Resources Outside of the School," and a concluding chapter, "Organizing for Diagnosing Your Climate"), and submit it to field testing in a number of in-service staff development projects in various parts of the country. As a result of these efforts it is planned that a completed manuscript will be available for submission to a publisher by July of 1970 so that the pamphlet may enjoy wide dissemination.

The second part of this chapter presents a draft of the packaged in-service education activities which utilize COPED research findings as a stimulus. It is entitled, "Improving the Professional Climate of Your School--A Research Utilization and Action Program." (Volume III) It, too, will be submitted for publication after a short period of field testing and polishing. It is designed as a multi-media set of resource materials. A unique feature is the "data bank", a set of cards containing the actual data from a set of school buildings and staffs of various types, to which the participants in the in-service action program will be referred for answers to some of the inquiry questions they develop after confrontation with some of the specific problems faced by the staffs of two specimen schools. The program is designed to involve a staff first in confronting some of the problems of professional climate through simulation-- that is, by using two schools about which real data have been gathered. After the participants have had a chance to be confronted with some of the typical problems faced by these schools, examine data that may illumine problems and lead toward diagnosis, raise additional inquiry questions about these schools which may be explored through use of the data bank, and serve as consultants to these school staffs in laying strategies for improvement, the payoff question is faced: "Do these problems and diagnostic procedures have relevance for us? Do we wish to become engaged in a problem-solving effort within our own school directed toward improving the climate here?" If so, guidelines are set for a continuing problem-solving program that may involve the staff for the rest of the year.

PROBLEM-SOLVING

Dale G. Lake

The COPED staff saw a need to improve problem solving in schools. Group problem solving was understood to include procedures for: sensing difficulties, diagnosing problems, inventing possible solutions, deciding among possible alternatives, introducing, evaluating, and modifying innovations. The staff was convinced that group problem solving could be improved:

The Need: Problem Solving in School Faculty Meetings

There is an abundance of literature indicating that faculty meetings are dull and meaningless when centered around information-giving which could be efficiently taken care of on daily notices, bulletins or memos. A typical example of this opinion is reported by Elsbree and McNally (1967) when they state:

> This suggests that the faculty meeting need not be the dry and dull routine that it has been in all too many schools. Instead of being devoted to routine announcements and discussion of routine details (much of which can be accomplished through a bulletin) it can deal with matters vital to the staff.

The late Kimball Wiles, (1955) states the same opinion:

> The literature of supervision praises faculty meetings as a way of improving the quality of a staff and the school program. They are described as opportunities for cooperative thinking, for staff planning, for the presentation of stimulating talks by resource people, for getting to know the total school, and for interchange of ideas - all of which result in growth for the staff member.
>
> When teachers are asked about faculty meetings, the story is altogether different. Most teachers rate faculty meetings very low as places for securing ideas about better teaching. Most teachers feel that they do not have any part in setting up faculty meetings, that the meetings belong to an administration that is imposing on their time.

The Need: Teachers' Involvement in Education Policy

Teachers want to play a stronger role in the formation of educational policy. An article in The New York Times states:

> A resurgence of militancy among the nation's public school teachers marked the year of 1963. There was mounting evidence that teachers are no longer content to rule only in the classroom to which they are assigned. They want a hand in the assignment and a voice in the policy that controls their professional lives. They are not asking to run the schools, but they want their views heard and heeded.

Campbell, Corbally, and Ramseyer (1966) give an example of this view point when they state:

> In a discussion with the members of the coordinating council, at least two principles of action emerged as being of real importance for administration. They are 1) that teachers (and representatives of all participating groups) must believe that their ideas are wanted by the administrator and that their ideas will have an effect upon the actions that the administrator recommends, sanctions, or makes himself; and 2) that some action on matters of prime importance to teachers should be initiated by the administrator and vigorously supported on the basis of the evidence available. The members of this particular co-ordinating council did not feel that the administrator needed to be always in agreement with his teachers. It was their judgment, however, that if an administrator fails to approve a group decision or if he recommends an action contrary to that approved by the group, he should report the same and give his reason.

Max Rosenberg (1969) takes the same position when referring to the principals' challenge. He states:

> He must offer teachers and parents an opportunity to participate in decision-making. At the same time, he must be willing to take action; to move forward to bring out desirable changes. He must be willing to stick his neck out; to fight for what he needs.

Burton and Brueckner (1955) also feel the teachers must be and are becoming more involved in the study of educational problems:

> There is a very definite trend in recent years toward more participation on the part of the school personnel in the study of educational problems. This has been true everywhere. Some of the areas in which wider participation has been provided are those of discovering and defining educational problems, of helping community projects, of formulating instructional plans and policies, of curriculum-making, of choosing instructional materials, and of developing educational criteria of one sort or another. These seem important enough to warrant special comment.

The COPED staff saw these needs and asked itself: What research and theoretical literature would argue for supporting our conviction that group problem solving can be improved?

Kelley and Thibaut (1959) have recently summarized much of the literature on group problem solving and much of the following discussion is indebted to them. They also review studies which examine what happens to individual problem solving in the presence of others. A summary follows:

1. Subjects report that an urge toward greater speed is produced by the activity of others, and they report greater emotional excitement (and distraction) than when alone.

2. Subjects are aroused to activity even after having (in social isolation) reached a point of satiation with it (see Burton, 1941, on children's play activity, and studies on animal eating behavior summarized by Zajonc, 1965).

3. The largest performance gains occur for individuals who give evidence of having least interest in the task itself (those with the lowest solo performance on tasks where performance seems to be a function primarily of how hard the person tries).

4. Intraindividual (time-to-time) variability is higher under social conditions (Allee and Masure, 1936; Allport, 1924; Mukerji, 1940). This would be expected if it is assumed that the heightened motivation carries the person to a performance level where the counterforces (from fatigue, skill limitations, effort, etc.) are very high. The high level of tension resulting from the conflict between the two sets of pressures would create high susceptability to severe though momentary disruptions and would be manifested in large variations in performance. (Kelly and Thibaut 1969, p.4.)

1-Review-Problem Solving

Such evidence, interpreted to mean that social conditions increase motivation for high task performance, the results being positive or negative depending on the person's level of skill, initial motivations, etc., played a part in convincing the COPED staff to try to improve problem solving in groups.

It is important to present dissenting findings. Allport (1924) concluded from his and other studies that "...it is the overt responses, such as writing, which receive facilitation through the stimulus of co-workers. The intellectual or implicit responses of thought are hampered rather than facilitated." (p. 274). The problem with this argument is that the intellectual processes of which Allport speaks are not directly observable. Further, it might be hypothesized that if Allport's subjects had been trained to have similar problem-solving techniques such as searching, selecting, grouping, etc., they might have improved each other's problem solving.

Other evidence convinced the staff that conditions which affect group solving have been identified and can be changed. Some of these conditions are:

1. the way the group handles information.
2. the extent to which group members perceive and feel the importance of a problem.
3. the readiness of the group members to keep the group in tact.
4. the characteristics of the problem to be solved.

Attribution Theory

In addition to the evidence cited above, groups may facilitate problem solving by improving the clarity and/or objectivity with which information is perceived. Fritz Heider (1958) defined attribution theory as that process of "infering or perceiving the dispositional properties of entities in the environment--the stable features of distal object." (1958, p.79.) One criteria that persons employ to make judgments is that of consensus: attributes of external origin are experienced the same way by all observers; there is consistency among persons. This is not to imply validity of attributions because they have consensus, it merely results in the individual's feeling that his judgments are right. Since problem solving usually depends upon some form of information reception, the degree to which the information is perceived consensually will, as other studies have shown, decrease the time needed for decision making and will probably increase the validity of decisions made.

Information Exchange

Each person brings to each task differing amounts of information. Thus, a curriculum development group may have persons from different academic disciplines, master teachers, and administrators. Adequate information exchange requires high degrees of interpersonal trust, and acceptance of information (Deutsch, 1949a, 1949b); Zander and Wolfe, (1964).

It has also been found that groups solve problems best when they plan their communication. For instance, Shure, et.al. (1962) studied five-man groups working in on "all-channel" network on the common-symbol problem. Some of the groups were afforded separate planning periods, others were not. The groups given separate planning periods were far more successful in evolving an efficient organization for information transmission (and were significantly faster in solving the problem by the last trial) than were the other groups.

While it is clear that any problem solving activity whether individual or group involves information seeking, Lanzetta and Roby (1957), have investigated the relative efficiency of information seeking versus volunteering of information by others (a distinctively group behavior). Three man groups have worked interdependently at a group task requiring successive adjustments to changing information. In half of the groups ("volunteering" condition), the subjects were instructed to report any informational changes over an intercom system to certain of their fellow subjects. Though these two conditions did not differ in the numbers of errors committed, the "volunteering" condition was more efficient in the sense that fewer messages were required and less time was spent in talking.

It is worth noting, however, that as the size of the group increases, the proportion of members volunteering information decreases (Gibb, 1951). This decrease in the proportion of volunteers occurs particularly as the size of the group increases from two to about seven.

Initiating Problem Solving in Groups

Natural groups in school systems, such as faculty meetings, curriculum meetings, and steering committees, are often not seen as the place where work, i.e., problem solving, is to be done. Rather, the meetings may simply serve information exchange functions, spleen venting functions, or affiliation needs.

A key question for both the researcher and the change-agent practitioner becomes, "under what conditions will groups in natural settings initiate problem-solving efforts?"

Kelley and Thibaut (1959, p. 39) contend that a "necessary (though not sufficient) condition for inducing an orientation to group problem solving is that all or a substantial subset of the group members fall below their comparison level for outcomes: Thus, a school group faced with an integration problem, a budget cut, pressure from the community in a particular community area, may begin to intiate problem-solving behavior. However, certain other conditions also need to be present. For instance, "whether a problem-solving orientation is taken or not depends first on the readiness of the group members to attempt to keep the group intact." (Kelley and Thibaut, 1959, p. 31.)

French (1941) compared problem solving on a series of tasks designed to produce frustration and failure of highly organized Harvard athletic groups showed intense frustration, which they expressed in intermember aggression and a general disorganization of group activity, all the organized groups resisted disruption. On the other hand, many of the unacquainted undergraduate groups were unable to remain intact under the frustration. In some instances opposing factions formed, and in others, members abandoned the group permanently to work on irrelevant tasks.

Group Versus Individuals

The research literature reviewed by Kelley and Thibaut (1969) demonstrates that the relative proficiency of groups in problem solving, as compared with individuals, depends on characteristics of the problem undertaken.

Research on a group problem solving using complex puzzles, achievement type problems, and social-judgment tasks generally show that group performance typically attains the level of the most proficient member. In fact, Hall, Mouton and Blake (1963) present evidence that most problem-solving groups on a social judgement task exceed the most proficient member.

However, it must also be noted that groups are slow. In numerous experiments in which groups and individuals are given a standard test to perform, groups require more time. For example, this has been found with a recall task (Perlmutter, 1953) and a complex planning problem (Fox and Lorge, 1962).

Summary of Problem-Solving Review

Given that so much of school system personnel time is spent in groups intended to be problem-solving groups; that the number of these groups increases with more and more teachers involved in deciding educational policy; given the present review which suggests that under centain conditions of cohesiveness and perceived need, groups can solve problems better than individuals and increase individual motivation -- the COPED staff decided to pay close attention to 1) measurement of problem-solving behavior (see COPED instrument Meetings); 2) the empirical examination of problem solving in relation to leadership style and morale (see COPED studies by Daoulos and Collins); and 3) training in initiating problem solving (see Volume III).

A common thread in COPED has been its focus on groups. Natural groups, as in classrooms and faculty meetings, and "composed" groups, as in change-agent teams or planning teams, have been integral to COPED research and action. This group focus threads together the following review of research literature.

Major variables of interest to COPED researchers are reviewed below. They are: cohesiveness; problem solving; and innovativeness. Other variables, such as norms, morale, leadership, and communication relate in fundamental ways to the three which interested us most. These other variables are discussed in context with the major three.

Cohesiveness

The COPED researchers defined cohesiveness as Dorwin Cartwright (1968) does in these words: "...group cohesiveness refers to the degree to which the members of a group desire to remain in the group. Thus, the members of a highly cohesive group, in contrast to one with a low level of cohesiveness, are more concerned with their membership and are therefore strongly motivated to contribute to the group's welfare, to advance its objectives, and to participate in its activities." The degree of cohesiveness depends primarily on how attractive the group members find the task and one another.

There is an important connection between cohesiveness and norms. Some norms increase the cohesiveness of a given group or organization, others decrease the cohesiveness.

Organizational norms are the prescriptions and proscriptions which regulate the organization-relevant behavior of organization members. These norms may be of two general types. 1) Rules which govern how a person is to perform the duties involved in his position or role. These are role-specific norms governing the kinds of interactions which may take place between the occupant of a given position and the occupants of other positions. Thus, each teacher in a school system is subjected to norms governing the kinds of interactions which may take place between herself or himself and students, principals, parents, etc. These are the formal standards developed by the organization to regulate the role behavior of the role occupants. There is, then, a different set of these standards for each different role.

2) A second class of norms is more general and governs the process of interaction of all members of the organization. These are informal standards which apply in varying degrees to system members, regardless of their position and regardless of the position of the person with whom they are interacting. For instance, there may be the generally endorsed norm that one should be trustworthy in one's interactions with other system members, and this would apply to students, teachers, principals, administrators alike.

Norms are often tacit. When revealed, they can be changed, and the changes can result in greater cohesiveness in the organization or group.

The consequences of cohesiveness are:

Responsibility according to Cartwright and Zander:

Responsible Activity

According to Cartwright and Zander, "Those who are highly attracted to the group more often take on responsibilities for the organization (Larson, 1953), participate more readily in meetings (Back, 1951), persist longer in working toward difficult goals (Horwitz, Exline, Goldman, & Lee, 1953), attend meetings more faithfully, and remain members longer (Sagi, Olmsted, & Atelsek, 1955; Libo, 1953)" (1960, p. 89). When the outcomes available through the group are higher than the comparison level for alternatives, then an individual must work through the group to achieve his ends. Although our major emphasis is on the consequences of cohesiveness, responsible activity may also be a cause of cohesiveness. It is tempting to speculate that group interaction initially undertaken because there was no satisfactory alternative is the first step in the causal process which eventually produces the several consequences of cohesiveness documented below. According to the logic of Homans' The Human Group (1950), an increase in group activity will be followed by an increase in both interpersonal attraction and interaction.

Satisfaction and Morale

Since there is an extensive literature relating high rewards or outcomes to high satisfaction (Collins and Guetzkow, 1964, pp. 188ff), it should not be surprising that the standard cohesiveness manipulations and measurements should correlate with satisfaction and morale (Exline, 1957; Marquis, Guetzkow, and Heyns, 1951). High outcomes produce cohesiveness and high outcomes produce satisfaction and morale. Furthermore it is not implausible that interpersonal attraction should produce satisfaction and vice versa.

Evaluation of Others

Persons tend to perceive liked others as being similar to themselves and as having mutual feeling toward them; they will tend to judge favorable the behavior of liked persons. Persons with favorable attitudes toward each other also tend to be more accurate in estimating feelings (Suchman, 1956) and in perceiving task-oriented behavior (Exline, 1957).

Communication

It is again necessary to state the communication is both an effect and a cause of interpersonal attraction. "If the frequency of interaction between two or more persons increases, the degree of their liking for one another will increase, and vice versa" (Hoffmans, 1950, p. 112). In support of the correlation between the two variables, Turner (1957) found that higher than average interaction rates were associated with liked foremen, and lower interaction rates were associated with unliked foremen. Manno (See COPED abstract) found classroom innovation increased with increased interaction. Lott and Lott (1961) also reported a correlation between attraction and communication. Considering attraction as a dependent variable, Bovard (1956) reported increases in interpersonal attraction when interaction was encouraged in his honors classes. Kipnis (1957) reported that both physical closeness and functional closeness (both of which lead to increased interaction) were positively related to interpersonal attraction. Turning to attraction as an independent variable, Kelley (1950) reported an increase in interaction when a substitute teacher was introduced as being "warm." Similarly, Back (1951) and Dittes and Kelley (1956) found increased interaction as a result of manipulated cohesiveness. In fact, the causal relationships between interpersonal attraction and communication are probably among the best-established propositions in social psychology.

In somewhat related studies, Grossack (1954) found that his cooperation instructions increased communication. Cervin (1956) found that subjects communicated more with an experimental accomplice who agreed with them than with one who disagreed. Runkel (1962) reported that channels of communication are likely to parallel feelings of respect among schoolteachers.

Interpersonal Influence

Perhaps the most widely reported characteristic of cohesive groups is the greater tendency of individual group members to influence and be influenced. Using the standard instructions designed to increase the congeniality of group members, several investigators found evidence of greater influence (Back, 1951; Berkowitz, 1954; Festinger et.al., 1952). Other investigators have reported a greater rejection of the deviant in highly cohesive groups (Emerson, 1954; Schachter, 1951; Schachter et. al., 1951). Festinger (1950) reports correlational data to support the greater rejection of deviants in highly cohesive groups. Gerard (1954) reports that subjects show greater resistance to changing an opinion if it is anchored in a highly cohesive group.

Further data on the relationship between cohesiveness and interpersonal influence comes from modeling literature. Although not a necessary condition for imitation, an imitator is more likely to match the behavior of a liked model than a neutral or disliked model. To consider just one example, Grosser, Polansky, and Lippitt (1951) found that an experimental confederate was more likely to be imitated when he behaved in a friendly fashion toward a co-worker than when his behavior was unfriendly. Other studies consistent with the above will be reviewed below in a separate section on social power.

Task Performance

There are a number of studies which report that work groups composed so as to include friends show higher productivity (Bjerstedt, 1961; Husband, 1940; Van Zelst, 1952a, 1952b); and other investigators have found correlations between measures of interpersonal attraction and productivity (Berkowitz, 1956; Chapman and Campbell, 1957; Darley, Gross, and Martin, 1952; Gardner and Thompson, 1956; Goodacre, 1951, 1953). But there are also studies which fail to demonstrate a relationship between interpersonal attraction and productivity (Horsfall and Arensberg, 1949; Marquis, Guetzkow, and Heyns, 1951; Philp, 1940).

Although task success (if associated with increased outcomes) should increase attraction, there is little theoretical reason to believe that group cohesiveness should be related causally to high productivity in a simple manner. Only in the special case where high productivity is instrumental to being liked is there any reason to expect that liking per se should facilitate productivity. In other cases, liking may inhibit productivity. If a group member belongs to a group primarily because he likes to interact with his friends, then the objective rewards associated with high productivity should have relatively little influence on him. Schachter et.al. (1951) and Berkowitz (1954) found that highly cohesive groups were more responsive to the group norms. But when the group norm called for low levels of productivity, members of highly cohesive groups inhibited the productivity to a greater extent than low-cohesive groups with the same norms.

Learning

As was the case with group productivity, it is an inappropriately general question to ask whether interpersonal attraction facilitates or hinders learning. It is necessary to study the specific mechanisms by which all the variables associated in the cohesiveness syndrome affect learning, and then construct a list of conditions under which cohesiveness might be expected to facilitate, inhibit, or have no impact on learning. Nonetheless, Shaw and Shaw (1962) review other studies which relate such variables as group- versus leader-centered classrooms and permissive versus authoritarian leadership to group learning.

Lott and Lott (1965) also discuss the impact of cohesiveness on the expression of hostility and self-evaluation, but the data they present are either anecdotal or comflicting.

In the COPED quantitative studies abstracted in this volume, two authors, Callahan and Dauolas make extensive use of cohesiveness and norms. Dauolas shows that high cohesive teachers perceive their educational goals to be more congruent with their principal's and they also perceive congruence between what they think an ideal reward system should be and what it actually is.

Callahan's findings indicate the ways in which the morale of system members is related to the degree to which they perceive that they are conforming to the interpersonal norms.

Finally, Hilfiker shows how interpersonal norms are related to innovativeness.

INNOVATIVENESS

The literature on innovativeness has been reviewed frequently and thoroughly. See for examples Bhola (1965), Lake (1968), and Miles (1967). Nevertheless, a short review is included here to set the context for the studies in COPED which examine correlates of innovativeness. The review is drawn from the Hilfiker COPED study.

A great deal of research is currently beginning generated with respect to educational change and innovation. Some of this research has been oriented toward measuring variables related to the speed with which innovations are initated and spread. Mort (1946) reported that when an innovation had been introduced to meet an educational need, 15 years elapsed before 3% of the nation's school systems had adopted the change. Complete diffusion could take as long as 50 years. Much of Mort's work was done by using variables related to the economic base of the district. Indeed, much of his research dealing with educational innovation had a financial emphasis rather than consideration of innovations as a major dependent variable. His conclusions were that school systems that were first to adopt innovations spent the most money per pupil and, conversely, thos systems which were last to adopt innovations spent the least per pupil. Other studies indicated conflicting evidence regarding financial support. A study by Ross (1958) supported the view that expenditures made for teachers and instructional supplies was the most important influence on adoptability (adoption of innovations). However, a more recent study by Carlson (1965) on expenditures per pupil and the adoption of educational innovations did not support Mort's and Ross's findings. Carlson found that the "mean expenditure level was not related in a consistent manner to the number of innovations adopted".

Carlson's interest was directed primarily toward finding predictors of the rates of innovation, adoption and diffusion. He defined five characteristics of innovations which he felt contributed to the fate of an innovation:

(1) Relative advantage is the degree to which an innovation is superior to ideas it supersedes.
(2) Compatibility is the degree to which an innovation is consistent with existing values and past experience of the adopters.

(3) Complexity is the degree to which an innovation is relatively difficult to use.
(4) Divisibility is the degree to which an innovation may be tried on a limited basis.
(5) Communicability is the degree to which the results of an innovation may be diffused to others.

He asked a panel of judges to rate a given set of innovations according to the innovation characteristics. The rates of diffusion of these same innovations were then compared with the diffusibility ratings on the five characteristics. The results indicated that the varying rates of diffusion of educational innovations are only partially accounted for by the five characteristics of innovations.

Carlson (1965) then studied the characteristics of innovators and non-innovators. He found that the following generalizations appear to describe innovators:

1. Innovators generally are young.
2. Innovators have relatively high social status, in terms of amount of education, prestige ratings, and income.
3. Impersonal and cosmopolite sources of information are important to innovators.
4. Innovators are cosmopolite.
5. Innovators exert opinion leadership.
6. Innovators are likely to be viewed as deviants by their peers and by themselves.

He summarized the implications his research may have for school administrators. He indicated that "social characteristics, social relationships, and communication behavior of the members of the school staff undoubtedly relate to the innovativeness of their school system. The implication was that by hiring teachers who appear to fit the innovator pattern, some change might be expected at the school system level. At the same time he indicated that research shows that building principals are key figures in the innovative process.

Gallaher discussed the matter of directed changes and innovation and especially the potential of the school administrator in the role of the advocate. He made a distinction between the term innovator which he used to describe the individual or agency responsible for the conception of an innovation, and the term advocate, which he used to refer to individuals or agencies who sponsored an innovation for the express purpose of gaining its acceptance by others. He saw the advocate's role as mainly one of manipulation to gain the acceptance of an innovation. Gallaher expressed strong reservations that the school administrator is the person to whom to assign advocacy functions. Instead, he saw the administrator in a "balancing" role which involved mediating internal conflict or conflict between the system and the community it serves. Such a view takes into account the fact that innovation is only one response that a school system makes to its environment.

According to Pellegrin, role-theory research provided a source of innovation variables in organizational studies. He indicated that certain kinds of behavior, such as innovative behavior, are

> expected of incumbents of certain kinds of positions, but not expected of others. Indeed, it is quite possible that the normative expectations associated with any particular positions may encourage stability of behavior rather than creativity or other kinds of innovative activities.

Pellegrin indicated that studies dealing with teacher's roles as innovators at the classroom level have consistently found that teachers are not major innovators because (1) there is a lack of established, institutionalized procedures for disseminating what is gained from innovative effort and (2) pressures for conformity to establish procedures are severe; i.e., the teacher is constrained by the environment - both formal and informal - in which he works.

Blau and Scott (1962) also stressed the importance and the effects of environment, or group climate, upon the individual. "The group climate or subculture is defined by the values and norms that prevail among group members. It is often asserted that the prevailing group climate influences individual conduct." They pointed out (1) group climate can change the attitudes of individual members and (2) prevailing attitudes in the group can influence a group member's conduct regardless of his own attitudes.

In a listing of significant variables related to change and innovation, Bhola included the availability of resources and the skills, personnel, material, and influence of both innovators and adopters. At the same time he recognized, the importance of environment in combination with other factors. He stated:

> Environments within which innovators and adopters exist may multiply the effectiveness of resources or may neutralize them, resulting in expenditure of resources with no gains in diffusion. Environment would, therefore, be another factor in determining the probability of the diffusion event. This incidentally is a factor so far wholly neglected in most innovations models.

Bhola defined the environment as "comprising physical, social and intellectual conditions and forces that impinge continuously on a configuration." In this sense configurations are social units (such as a school system) within which individuals play a variety of formal and informal social roles. In the case of an individual, the environment would range from the most immediate social interactions to the more remote cultural and institutional forces. Bhola (1965) suggested that the forces in an environment or an inhibiting environment. He defined a supportive environment as one which encouraged initiators to support innovations and target systems to accept them, a neutral environment as one which did not contribute to innovation diffusion one way or the other, and an inhibiting environment as one which did not sanction innovations and made target systems unresponsive to initiators' efforts. He added that supportive environments are not necessarily desirable beyond a certain maximal limit since system stress may produce atypical reasons for the desire for innovations, such as prestige. It is also possible that in an extremely supportive environment an innovation may be discarded and replaced before it has had a chance to produce results.

Analyzing the organization as the receiving configuration, Bhold (1965) discussed the matter of system hetero-homogeneity. He believed that a system could be considered homogeneous for the purposes of "formal" acceptance of innovations, but not necessarily for "functional" acceptance of innovations, i.e.,

> within institutions and organizations, some individuals may accept an innovation only formally, or minimally or may merely tolerate it...formal innovation adoption is a minimal acceptance; a decision to put on the act of adoption without cognitive and additudinal restructuring necessary for functional acceptance.

This line of thought led Bhola to state that sociopsychological typologies are needed to explain, control, and predict innovation and diffusion with increased refinement.

One of the most extensive treatments of innovation research and theory by a single author was prepared as a conference paper by Bhola. In this report he considered both individuals and organizations as innovators. He indicated that there are a number of variables which may operate at the individual innovator's level:

1. Age of the individual.
2. Social status, prestige, amount of income and education of the individual.
3. Sources of information for the individual.
4. The degree to which individuals exert opinion leadership.
5. An individual's orientation toward the future.
6. An individual's relationship to existing cultural patterns and community norms.
7. Communication behavior of the individual.
8. Capacity of the individual to analyze influential power structure.

While these variables are discussed within the context of the individual innovator, there appears to be considerable difficulty in isolating innovative variables as an exclusive property of the individual. The individual exists in an environment, and in the case of the professional educator this environment is normally structured by social systems, the school organization being one of the most important.

Goodson, (1966) in his discussion of the school as a formal organization, indicated that "the assimilation of an innovation into the operating norms of the school must involve authority and power relations which maximize the autonomy of teachers and support their professional judgment." He stated that

> for an educational system to improve over a long period of time, it is required that the organization for attending to change, as well as specific innovations themselves, acquire capacities for irreversibility, self-regeneration, and self-correction.

The implication made by Goodson (1966) and those who have emphasized the organizational approach is that it is the organization that processes innovative inputs, recognizing that there are vast differences in a given individual's receptivity and support for a change or innovation. The question of the ways and means by which a specific innovation is supported or resisted by organizational personnel is a vital one. Some of the forces that bear upon organizational change can be identified by utilizing Force Field Analysis developed by Kurt Lewin. (1951) Change-agent teams operating at the school system level have applied this technique in attempting to identify positive and negative forces which are perceived as acting upon a proposed innovation. In most cases these forces tend to be perceived as organizational in character rather than individual or interpersonal. Whether this reflects reality or merely the natural reluctance to name persons as negative influences has not been determined.

A few studies have dealth with negative aspects of innovation adoption, i.e., those variables which tend to operate as resistance to change and innovation. Goodwin Watson (1967) presented a rationale for resistance to organizational change and homeostasis by comparing it with psychological resistance in the human personality. Furthermore, he associated norms in social systems with habits inculcated in individuals since birth. Both are said to utilize some of the same mechanisms in coping with the forces of change-the illusion of powerlessness, early conditioning, dependence on authority figures, insecurity, and a regression toward old behavior patterns. Watson, in summarizing his views on change, listed a number of principles that can be used to reduce resistance in a system. Some of these principles have to do with adjustments in the psychological set of the receiving system. For example, according to Watson resistance will be less if

1. Participants feel the project is their own-not one devised by outsiders,
2. the project clearly has the whole-hearted support from top officials of the system,
3. the project accords with values and ideals of participants,
4. participants experience acceptance, support, trust, and confidence in their relations with one another,
5. participants feel that their autonomy and security is not threatened.

Klein, (1956) in discussing the "defender role," also drew a parallel between Freudian uses of the term resistance and the resistance to change within social systems. He suggested that

> as in patient-therapist dyads, opposition to change is also desirable in more complex social systems...what is often considered irrational resistance to change is, in most instances, an attempt to maintain the integrity of the target system in the face of real threat or opposition....

Klein (1956) appeared to view the defender role as a force opposing change. He indicated that while this force may use extreme methods in countering change (demagogues and rabble rousers), the prochange forces may use similiar techniques. Klein's implication was that the defender role may perform a needed service for the receiving system, that of digeting the innovative input so that it can be absorbed into the system without serious or prolonged organizational disorder.

Goldhammer (1965) indicated that in considering various means by which change and innovation can be planned "it is doubtful that any blueprints or formula can be proposed. The probabilities for success must be carefully weighed and each human situation must be individually analyzed." But this view has not prevented researchers from proposing a number of different strategies for institutionalizing innovations. Authors appear to indicate a preference for the concept of change and innovation as originating from an external source rather than one indigenous to the system. While both viewpoints will be represented in this review, the internal "condition" of the system is explored in somewhat greater detail.

Miles (1965) indicated several strategies that might have relevance for the initiation of innovations into a given school system:

1. Strategies initiated by the system, using existing organizational structures.
2. Strategies initiated by the system, using new organizational structures.
3. Strategies initiated by systems external to the local school system, utilizing existing local structures.
4. Strategies initiated by systems external to the local school system, utilizing new (local) structures.

Griffiths (1964) stated that since "the tendency of organizations is to maintain a steady state, the major impetus for change will come from the outside rather than inside an organization." Griffiths pointed out that in a study of elementary school principals those principals who scored higher on organizational change were not aggressive leaders as such, but administrators with a tendency to make changes to please outsiders. March and Simon (1958) also took the position that the stimuli to innovation are external. While their studies focused upon business firms, many of the aspects of their organization model also could be applied to school systems. Pellegrin indicated that one

> cannot fail to be impressed by the fact that the greatest stimuli to changes in education originate in sources external to the field...the sources of innovation lie largely outside the local community, and in most instances outside the educational profession. Innovations are channeled into the local community from the outside, and their introduction on the local community level depends primarily upon the superintendent.

Attempting to deal with organizational or environmental conditions that are related to change can be extremely complex, but Halpin (1957) emphasized that such conditions do exist and may be analogous to a human being as a "receiving system" for innovation.

> Anyone who visits more than a few schools notes quickly how schools differ from each other in their "feel". In one school the teachers and the principals are zestful and exude confidence in what they are doing...In a second school the brooding discontent of the teachers is palpable; the principal tries to hide his incompetence and his lack of a sense of direction behind a cloak of authority. ...A third school is marked by neither joy nor despair, but by hollow ritual....And so, too, as one moves to other schools, one finds that each appears to have a "personality" of its own. It is this "personality" that we describe here as the "Organizational Climate" of the school. Analogously, personality is to the individual what Organizational Climate is to the organization.

In 1957 Halpin suggested that a promising approach is to predict events related to changes in organizational maintenance on the bases of the variables identified with the bahavior of school administrators. The behavior and role of the school administrator has become the subject of numberous studies in recent years. Much of this research dealt with administrator behavior in terms of psychological or sociological dimensions. Halpin suggested that social-psychological variables also play an important role in change at the organizational level.

> What little research has been done on organizational change suggests that, to be effective, any technique we use must take into full account the irrational element in man, must recognize psychodynamic factors within individual group members as well as within the organization as such, and must reflect-at the level of the organization itself-a pattern of relationship similar to that which obtains between a patient and a psychotherapist.

The patient-psychotherapist analogy also was used by Miner (1964). He indicated that the concept of "organizational character" may be related to change and innovation in school systems in the following words:

> The research does demonstrate, then, that school districts develop very disparate organizational characters, and that these characters can be measured and described. Given these facts, it appears evident that studies of the kind conducted can serve as a basis for innovation. Perhaps they are absolutely essential to real change. Certainly a psychotherapist needs to have some knowledge of his patient's personality makeup as a basis for planning a change effort. An analogous diagnostic or descriptive process at the level of the crucial variables may well be a necessary condition for organizational change as well.

The concept of a school system as having personality attributes and a state of health somewhat analogous to the human organism was also supported by Miles (1965). He maintained that

> the state of health of an educational organization can tell us more than anything else about the probable success of any particular change effort. Economy of effort would suggest that we should look at the state of an organization's health, as such, and try to improve it-in preference to struggling with a series of more or less inspired short-run change efforts as ends in themselves.

He noted certain phenomena which appear to characterize groups that tend to generate change and innovation:

1. Increased energy devoted to the accomplishment of novel, significant, focused, internalized and shared goals.
2. Effective, controllable procedures for achieving the goals.
3. Esprit de corps, group support, and mutual identification with peers.
4. High autonomy and spontaneity with freedom for creative experimentation, along with norms actively supporting change itself.
5. Higher quality problem solving via increased communication among participants and fuller use of member resources.
6. Actibe meeting of members' needs for autonomy, achievement, order, succorance, and nurturance.
7. High involvement and commitment to decisions followed by group support for implementation....

Miles (1967) raised key questiona regarding the existing state of a local system and the factors which might accelerate or resist change:

> As the innovation begins its movement into the target system, questions must be asked about pre-existing conditions in the system which may facilitate or hinder change. For example: What is the role of the general Zeitgeist in serving as a supporter or blocker of specific changes, or as a creator of generalized oppenness or resistance to many changes in the system?
>
> And: Are there conditions which might be characterized as making for "ripeness" of the system, a kind of latent disequilibirium which makes subsequent innovations actually welcome? What is the role of the external or internal crisis in making for openness toward innovation? What sorts of factors, whether personal (e.g. cognitive dissonance), interpersonal (e.g. status disequilibrium on the part of significant actors), or organizational (e.g. ambiguity in power structure) make for readiness for the innovation?

These kinds of questions are fundamental to any study on the change process and innovativeness in education. While interest in exploring these questions is becoming more evident, research literature has been virtually silent on the nature of the organization setting and climate in which innovation takes place.

There appears to be some agreement in the literature that the condition of the receiving system plays an important role in both the resistance and acceptance of changes. The concept of the "condition" of the receiving system plays an important role in both the resistance and acceptance of changes. The concept of the "condition" of the receiving system has been described in various ways: organizational health, organizational climate, psychological set, and environmental milieu. Authors who utilize this concept discuss the organization in terms that are commonly used in connection with living organisms-sick or healthy, stable or unstable, creative or non-creative, and rigid or adaptive.

The COPED quantitative studies made extensive use of the innovativeness concept. Se studies by Mosher, Hilfiker, Stephens, Manno, Patrinos, and Genova. In addition, Fox, et. al, in Vol. III have developed a training package for analyzing the state of innovativeness in schools.

In the studies by Hilfiker, Patrinos and Manno the relationship of innovativeness to leadership behavior was also explored. The following discussion describes the particular way leadership was studied in these COPED studies.

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MAJOR FINDINGS

Introduction

This section contains the discrete findings of the COPED study and action project. No attempt is made in this section to integrate the findings nor to eliminate those which seem contradictory. The findings are drawn both from experience, with the major resource material coming from vol. 2, the case studies; and from research, the quantitative studies abstracted in section four of this volume. This section is intended to give the reader a flavor of the variables which became important to the COPED project; but the reader will want to satisfy the validity of each finding by referring to the sources as indicated. This will be especially important for such variables as innovativeness, group cohesiveness, shared leadership, morale, educational goals, etc.

Innovativeness

1) Leadership: Teachers and department heads from high-innovative schools are more likely to perceive their department heads as providing shared leadership than teachers from low-innovative high schools. (Patrinos, 24 high schools, N of teachers was 274)*

2) Discrepancies between what teachers want in supervisory behavior and what teachers perceive is actually given by department heads is not related to the degree of innovativeness. (Patrinos, Ibid.)

3) Shared leadership by department heads (as seen by teachers) is a function of teacher-principal salary differential but not principal's formal education, experience, or size of department. (Patrinos, Ibid.)

4) No significant relationship (Spearman rank order of .524) was found to exist between innovativeness and Gross and Herriott's measure of Executive professional leadership. (Hilfiker, 8 systems, 623 teachers)

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*The notations used in parentheses in this section will refer respectively to (1) the author, whose abstract is found in the last section of this volume; (2) the number of schools or systems involved -- when this unit was involved in the analysis and (3) the number of persons and their roles.

5) A significant relationship (Spearman rank order of .952) was found between innovativeness and Gross and Herriott's social support measure. (Hilfiker, Ibid.)

6) Perceptions, properties and interaction: Teachers' private attitudes toward innovativeness are more positive than their perception of other teachers' endorsement of such attitudes. (Stephens, 1 system, 14 schools, 412 teachers)

This finding is related to others (see Callahan) which when taken together suggest that perceptions of attitudes toward innovativeness, interpersonal process norms of openness, trust, and authenticity; share a pluralastic ignorance, often operating in such a way as to promote more conservative behavior; i.e., in the above finding the individual teacher may be less willing to try something unusual feeling that others are not favorable toward innovativeness.

A second generalization this finding suggests and which can also be inferred from Callahan's study is: a discrepancy exists between attitudes and behaviors in school faculties.

7) Innovative classroom teaching is a function of teacher perceptions of the reward system (as favoring creativity, quality, etc.), but probably not of perceived school system norms nor of teacher attitudes toward innovativeness. (Stephens, Ibid.)

8) No significant relationship was found between school system innovativeness and the age of professional personnel. (Hilfiker, 8 systems, 623 teachers)

This finding needs to be checked with a different kind of analysis. Callahan did find a relationship between age and conformity to interpersonal norms when he analyzed the data curvilinearly and it would be useful to know if this curvilinear relationship exists in the Hilfiker data.

9) No significant relationship was found between school system innovativeness and expenditure per pupil. (Hilfiker, Ibid.)

10) A significant relationship (Spearman rank order of .786) was found to exist between school system innovativeness and interpersonal process norms of trust as perceived by the professional personnel of the system. (Hilfiker, Ibid.)

11) A significant relationship (Spearman rank order of .976) was found to exist between school system innovativeness and problem solving adequacy of professional meetings as perceived by professional personnel. (Hilfiker, Ibid.)

12) Innovative classroom teachers are more likely to be male and to have been university-trained. Race, tenure status, age, and teaching experience do not predict innovativeness. (Mosher, 1 system, 594 teachers)

13) A just barely supported trend shows that innovative classroom teaching may be more likely for new and well-established teachers than for those with 3 - 5 years of experience. (Mosher, Ibid.)

This finding is only included because other investigators -- Chesler at the University of Michigan and Calder at Teachers College, Columbia have found that teachers with 8 - 10 years in the system do innovate contrary to findings by Mort.

14) Innovative classroom teachers feel more involved in school activities than less innovative teachers, but feel that m inimal involvement is better "in the long run". (Mosher, 1 system, 594 teachers)

15) High-innovative schools have a higher rate of teachdr-initiated innovations than low-innovative schools, and as contrasted with administrative-initiated innovations. (Patrinos, 24 high schools, 274 teachers.)

16) Teachers in large high schools perceive their department heads as being more discrepant (i.e., the difference between actual and should) on important supervisory behaviors than do teachers in small high schools. (Patrinos, Ibid.)

17) Teacher discussion of classroom innovations induces more innovative tryouts during the period of discussion (6 weeks), but not afterward. (Mahno, 6 systems, 9 buildings, 169 teachers)

18) Teacher to teacher interaction about classroom innovations induces more affiliation among teachers, but not necessarily norms favoring innovativeness, or increased motivation to innovate. (Manno, Ibid.)

19) Teacher to principal interaction about classroom innovation induces perception of increased explicit evaluative behavior by the principal. (Manno, Ibid.)

20) Inter-teacher communications about classroom innovation is ordinarily minimal, but can be increased temporarily via group interaction. (Manno, Ibid.)

Social psychological properties

21) Teachers who perceive themselves to be in a cohesive system select intrinsic rewards as those which count most in getting ahead. (Daoulas, 9 systems, 1216 teachers, correlation significant at less than .001)

22) Teachers who perceive themselves to be in a cohesive system perceive more congruence between what "should count most in getting ahead in this system", and what "actually counts" than do low-cohesive teachers. (Daoulas, Ibid., significant at less than .001)

23) Teachers who perceive themselves to be in a cohesive system also perceive their principal's goals to be more congruent with their own. (Daoulas, Ibid., significant at less than .05)

24) Teachers with less than three years experience perceive themselves to be in less cohesive systems than those who have more than three years experience. (Daoulas, Ibid.)

25) Given the choice of their goals for education, teachers overwhelmingly rank academic goals as more important than socialization goals. (Daoulas, Ibid.)

26) Nursery, kindergarten and elementary teachers perceive themselves to be in more cohesive systems than do secondary teachers. (Daoulas, Ibid.)
This finding should be checked against size of building facilities, and age of children being worked with.

27) Teachers and principals prefer problem solving meetings to information giving meetings. (Collins, 9 systems, 1200 teachers and principals.)

28) Teachers see administrative superiors as less supportive and willing to take suggestions than those administrators see themselves. (Shaevitz, 1 system, 650 teachers)

29) The morale of teachers (and other school system professionals) correlates positively with the degree to which they perceive themselves to be conforming to interpersonal norms. (And negatively with the degree they perceive themselves to be deviating.) (Callahan, 1 system, 329 teachers)

30) Morale of newcomers to the system and oldtimers is unrelated to actual conformity. Morale of people with 2 to 11 years of service is positively related to actual conformity. (Callahan, Ibid.)

31) Teachers who give their principals a high Executive Professional Leadership rating also report that their faculty meetings are more oriented toward problem solving than information giving. (Collins, 9 systems, 1215 teachers)

Student behavior

32) Best predictor of skipping school and misbehavior is college aspirations. Those who intend to go to college skip and misbehave less. (Hagstrom, 56 high school classrooms, 8 systems, 1813 students)

33) Social class is not related to misbehavior within schools. (Hagstrom, Ibid.)

34) Students who want the greatest increase in the teacher's willingness to ask the class what it wants to do are likely to report the greatest amount of misbehavior. (Hagstrom, Ibid.)

35) Women teachers have less orderly classes than men. (Hagstrom, Ibid.)

36) Women are perceived by students to grade less fairly. (Hagstrom, Ibid.)

37) Classroom order increases as peer group morale increases. (Hagstrom, Ibid.)

38) Order in the classroom increases as proportion of female students increases. (Hagstrom, Ibid.)

39) There was no support for the idea that classes are made disorderly by the presence of students with disorderly histories. (Hagstrom, Ibid.)

40) Classroom order varies inversely with the size of the class. (Hagstrom, Ibid.)

COPED RESEARCH

by

Dale G. Lake & Dan Callahan

From the beginning, COPED was an action oriented research project. It was originally conceived to be a four-year project with the first year being spent on the development of concepts for understanding change in school systems; the following two years were to include active intervention to create change in schools along with the development of measurement devices to discover the empirical relationships between the intervention strategies and changes in the properties of schools and school systems. All of this was to be followed by a year's evaluation and dissemination of the developed change strategies. The first section of this chapter will describe the research events and proceedings of the first two years. Since COPED funds were cut off at the end of the second year, major revisions of the original plans had to be made, and these, along with the results, will be discussed in the second section of the chapter.

ORIGINAL RESEARCH PLANS

At the Tarrytown Conference in October, 1965 a measurement committee was created with responsibility to design the research, identify or develop appropriate instruments and maintain research standards. The first major task this committee undertook was the development of an assessment package. The committee then had to address itself to such problems as sampling and procedures for data collection. The solutions to these problems will be described after the description of the instrument package.

From the beginning, there was no attempt to make a rigid, experimental design out of COPED. As an inter-university, inter-disciplinary project, an extremely tight design would have been difficult, if not impossible, to accomplish. Not only that, a large number of the staff were as much interested in helping schools plan change as they were in understanding how it is that change occurs in schools. The approach adopted was a straightforward modification of a classical pre-, post-, time series design (as described by Campbell) with programmatic variations called intervention strategies. The strategies varied somewhat (see Case Studies Volume II). But, as Lake pointed out in an interim report, all strategies had common elements:

> 1) goal setting and action planning was done collaboratively between university and school system personnel; 2) special training was provided for key school system personnel in systematic problem solving; 3) no direct work with children was undertaken, the assumption being that improvement in the adult role occupants would improve classroom functioning; 4) efforts were planned such that the gradual withdrawal of university skills would be placed by newly developed skills of school system personnel. (P. III, 1).

Given the diffuse nature of the research design, the measurement committee was faced with the difficult task of designing an instrument package which would cover the similarities and the differences of the approaches being used. That is, since no specific research hypotheses had been generated, they had to anticipate a broad range of variables being affected by the different strategies. The result was that they assembled a "net" of specific measures which would capture the essential features of school system change generated by the intervention strategies. What follows is a description of the instruments as they were administered during the Fall of 1966 and again in the Spring of 1967. (The anticipated Spring, 1968 data collection had to be cancelled because the project was not refunded.)

Instrument Development

As it turned out over the four-year history of COPED, very few of the instruments satisfied both basic researchers and change implementers. This resulted in an uneven instrument package. Some instruments are well developed. Others are not. From the outset, the starting point for each instrument was quite different. At one extreme, one instrument, the EPL developed by Gross and Herriott, had already received fairly thorough development of reliability and validity with a sample of 1500 elementary school principals. At the other extreme were the new instruments created especially for COPED which were pre-tested on very small samples, i.e., less than a hundred, before they were officially administered. As time passed, the uneveness continued because the basic researchers developed their favorite instruments while other instruments, even to this date, have not received much attention. This will be clear in the following description when some instruments receive only passing mention while others are considered in more depth.

The one common conceptual thread shared by all members of COPED was a concern for process as opposed to content. That is, there was almost no interest in changing or understanding new math or science curricula. Rather, the interest lay in understanding and changing the influence process which led to a decision to adopt a new math or science curriculum. Figure 1 should help the reader to understand the process/content distinction being made:

Actual copies of the instruments described here are included in the appendix along with the coding manual.

Figure 1

COPED RESEARCH PARADIGM

Independent Variables	Intervening Variables	Dependent Variables
1) State of the system	1) Short range	SAT of seniors
Personnel	Problem-solving adequacy	Staff turnover
Community SES	Communication adequacy	Ratio by which bonds are passed
Tax wealth	Relationship adequacy	Ratio of faculty sick leave compared to # days available
History	Leadership styles	Etc.
Etc.	Cohesiveness	
2) Intervention strategies	2) Long-range	
Educational	Goals	
Personnel turnover	Norms	
Use of temporary systems	Rewards	
Training	Innovativeness	
Organization Development	Self-renewing	

The emphasis of the COPED measurement committee was clearly upon the middle column. Nested in intervening variables are the types of processes central to COPED's approach to change.

Description of COPED Instruments

In the COPED study, questionnaires were administered twice to students, the classroom teachers of these students, and other adults in the system including teachers, administrators, and persons providing such services as psychology, guidance, nursing, etc. (For the most part, questionnaires were not given to non-professional adults in the system.) Each of the three groups was administered specially developed questionnaires referred to as the Student Instruments, the Teacher Instruments, and the Adult Instruments. Descriptions of these three groupings of instruments follow. These descriptions will include information about the kinds and number of items, and the variable or varialbes measured by each. Scoring procedures are described in appendix I which contains the scoring manual. Notations used to designate instruments are described below in a footnote.

Student Instruments

There were a total of ten student questionnaires measuring such things as attitudes toward school values, aspirations, etc.

C - 1. How do you feel about these things? Is an instrument containing 7 5-point items (agree very much to disagree very much) designed to measure the students' attitudes toward how to participate in the classroom and school. They are asked to indicate their attitudes toward taking part in classroom discussions, doing homework, and the like. For example:

	I Agree Very Much	I Am In Between	I Disagree Very Much
1) It is good to take part as much as possible in classroom work.	1...	3...	5...

C - 2. How this class feels. Is an instrument containing the same 7 items. The student is asked to say how he thinks most of his classmates feel about these things. The perception of the class norm is measured by this one.

C - 3. How do you think your teacher feels? Repeats the same 7 items but this time in terms of the student's perception of the teacher's attitude toward these things. These three instruments can be used together to obtain measures of alienation. That is, discrepancies between the parallel items of each questionnaire provide measures of alienation from the classroom group and from the teacher.

C - 4. My teacher in this class is a 10-item (each with a 5-point scale) instrument which measures the student's satisfaction with the teacher.

All of the preceding four student instruments were developed at the University of Michigan and are described in the pamphlet, Diagnosing Classroom Learning Environments, by Fox, Luszki and Schmuck (1966).[1] In addition to standard scoring arrangements using means and standard deviations by classroom on each item, a discrepancy scoring system on

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Letter designations are used as follows: C is used for child instruments, T for teacher instruments and A for other adults. Thus, the designation, C3Q5 refers to child instrument number three, question five.

[1] Fox, B., Luszki, and Schmuck, Diagnosing Classroom Learning Environments. Chicago: SRA, 1966.

the parallel items contained in the first three instruments has been designed to measure alienation from peer group and teacher. A construct validity study of this scoring arrangement was completed by Epperson, D. C. (1962).[2] Epperson also studied these constructs as they correlated with instrument number 4. However, thorough reliability studies still need to be done.

The following instruments were also initially developed at the University of Michigan:

C - 5. The people in this classroom group is a sociometric questionnaire containing four questions asking for nominees having the most a) expertness, b) helpfulness, c) leadership and power, and d) likeability. Two other questions measure the intensity of the respondent's involvement in the classroom group.

Sociometric centrality/diffuseness is derived by a variance measure of each of the four sociometric dimensions described above. High variance, showing that many students were chosen, indicates diffuseness. Low variance indicates a focus on a few youngsters and thus sociometric centrality.

Involvement in the classroom peer group is considered high if the pupil has few friends outside the class and lower if he has many friends outside.

C - 6. This classroom group has 14 5-point items measuring student perceptions of a) levels of peer participation, b) peer support, c) adherence to teacher controls, d) peer feelings about school work, e) support from the teacher, f) respect for class members, g) individualization of instruction. A total score (sum of the 14 items) provides an estimate of classroom support and health.

Initial reliability and validity data on this instrument was done by Luszki, and Schmuck, "Pupil Perceptions of Parental Attitudes Toward School."[3]

C - 7. Life in this classroom group contains 11 5-point items designed to measure the social-emotional climate of the classroom group. The questions ask for the student's feelings about how good the school is, how fairly the teacher grades, how it feels to be in this class, etc.

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[2] Epperson, D. C., The Dynamics of Two Variants of Classroom Alienation, Dissertation: The University of Michigan, 1962.

[3] Mental Hygiene, Vol. 49, No. 2, 1965.

C - 8. Your parent's work asks questions about father's and/or mother's occupation, and the presence of the father and mother in the home. The major purpose is to obtain an estimate of the student's socio-economic status.

C - 9. Your High School and Aspirations contain 9 items, 3 of which measure the value climate of the high school, 1 item measuring perceived membership in the "leading crowd", 2 items measure rebelliousness, and 3 items deal with academic aspirations.

C - 10. Today's Class is an 8-item, post-meeting reaction questionnaire designed to measure a student's feelings about and evaluation of the class period he or she just had. This instrument was designed for use as a measure of temporary classroom changes and was not included in the basic package.

Teacher Instruments

There are 3 teacher instruments designed to parallel 3 of the student instruments.

T - 1. How your students feel is a 7-item instrument which parallels student instrument #1. The discrepancy between how the teacher perceives the students to be feeling and how the students actually feel provides an estimate of how much in touch with students' feelings he or she is.

T - 2. How do you feel about these things? is a parallel to student instrument #3. The discrepancy score in this case provides an estimate of students' accuracy in perceiving the teacher's feelings. The discrepancy score from teacher instruments 1 and 2 tells the extent to which the teacher perceives that she or he feels differently from the students.

T - 3. Your classroom group parallels student questionnaire #6. Again, the discrepancy between the teacher's perceptions and student's perceptions about how students act in class is the variable measured here.

Hagstrom at the University of Wisconsin has completed reliability studies on the above instruments using 5 high school classes. In addition, he has completed factor analytic studies of these student instruments. His results are reviewed below.

The Reliability of the Measurements

There is little reason to question the reliability of many of the measurements used, such as class size, the proportion of students whose fathers have white collar jobs, (see instrument C-8) and teacher sex.

However, many of our measures are averages of student perceptions of behavior in the class, and it is possible to show that the individual judgments were quite unreliable. Each student was asked to rate his class as it actually was, and if students took the task seriously and used the rating scale in the same way, the ratings should agree very highly. In fact, there is great variation on these ratings for any class and any item. For instance, for the item, "Students behave themselves even when the teacher leaves the room," rated on a scale ranging from 1 to 5 (always to never or almost never), the standard deviations of student judgments within particular classes ranged from a low of .46 to a high of 1.47. Students clearly used the rating scales in different ways, and some students probably did not take the task seriously.

One way of estimating this unreliability is to compute the correlation ratio for each item, the ratio of between class sums of squares to the total sum of squares for the item over all students. The resulting ratios ranged to a high of .44 with most less than .20. There does not seem to be any tendency for the behavioral items, such as the degree to which "Students laugh when someone misbehaves," to have higher correlation ratios than the more subjective items, such as the degree to which "Students like the teacher." Of course, these correlation ratios also depend on the variation among classes in the sample; with a more heterogeneous sample of classes, the ratios would be higher.

However, if the individual ratings are quite unreliable (probably less than .50 for many of the items used), the averages for the classes will be much more stable. For example, the within class standard deviation for the item "Students behave themselves even when the teacher leaves the room" is about 1.03 and can be taken as the standard error of individual judgments; if these errors are uncorrelated, .2, and this would correspond to a reliability coefficient above .95. Increasing the number of judges of a behavior, just as increasing the number of items on a scale, increases the reliability of the aggregated measurement.

In 34 classes we were able to obtain both students' and teachers' ratings of classroom behavior. In no case was the correlation between mean student rating and teacher rating higher than .35. For some variables the two ratings were essentially independent of one another. These results clearly indicate that different factors influence teacher ratings and student ratings. The ratings are almost certainly influenced by different experiences and different expectations. They are not based upon absolute criteria but upon comparisons with other classes. Students will compare their class with a given teacher with other classes they have taken, while teachers will compare different classes they have taught, and there will be almost no overlap in these reference points.

Furthermore, there is more pressure on teachers to bias their judgments so as to appear in a favorable light. For example, on the item "Students behave themselves even when the teacher leaves the room," the mean student rating was 3.47 while the mean teacher rating was 2.42 (On a scale of 1 for always, 5 for never or almost never); on the item "Students follow the teacher's directions," the mean for students was 2.64 while the mean for teachers was 2.31.

Teachers differ among themselves in their defensiveness and tendency to bias their responses. Teachers also differ in their expectations of good behavior; the lower his expectations the more likely is the teacher to give the class a good rating. Women, for example, have lower expectations than men, and women are more likely then men to rate their classes as well behaved, although students tend to rate classes with women teachers as more disorderly than classes with men teachers.

The reasoning above, together with the results of our multivariate correlation analysis, suggest to us that the teacher ratings are far less reliable and useful than the student ratings. (The difference is also produced by the fact that student ratings are an average of some 30 different judgments, while teacher ratings are from only one judge.) Other observers have also noted that teachers are often unreliable judges of behavior in their classes (e.g., Henry, 1963).

Factor Analysis of Aggregated Variables

As a first step in our analysis we factor analyzed a set of the aggregated variables. After preliminary analyses we selected 36 variables that did not seem to be identical in meaning and extracted 24 factors from the correlation matrix of these items using the "Image" factor analysis procedure at the University of Wisconsin Computing Center. The first eight eigen values of the factored matrix were 91.9, 34.9, 22.5, 14.5, 9.4, 8.0, 7.6 and 6.6. Eigenvalues after the first four did not differ much in size, and preliminary attempts to rotate more than four factors did not produce meaningful factors. Therefore, only the first four factors were rotated to simple structure using the Varimax rotating procedure. The results are shown in Table 1. The data in this table anticipate many of the results we shall discuss in greater detail in the following sections, and some of these anticipations are worth noting here.

The first factor, accounting for 18 per cent of the total variance among the 36 items, represents satisfaction with the teacher. The most highly loaded items are direct indicators of this satisfaction, namely mean ratings to the question, "How frequently do the students in this class like the teacher?" (loaded .93) and to the question, "Life in this class with your regular teacher has . . . all good things" to "mostly bad things." The item with the third highest loading in this factor is the degree to which the teacher is perceived to grade fairly; this may be interpreted as an antecedent of satisfaction with teacher, and we shall examine its relationships with other variables in greater detail in later sections. Other variables loaded high on this factor may be consequences of satisfaction with teacher, such as the perceived frequency with which students follow the teacher's directions and the frequency with which students take part in classroom discussions.

Table 1. FACTOR ANALYSIS OF HIGH SCHOOL CLASS CHARACTERISTICS

The analysis began with 56 high school classes measured on 36 variables. Twenty-four factors were extracted, with the image factoring procedure, and four of them were rotated to simple structure by the Varimax procedure; these four account for 52 per cent of the total item variance. Loadings greater than .35 are shown below.

			Loadings			
Item #		I	II	III	IV	h^2
C6Q11	Like the teacher (mean)	93				89
C7Q1	Life in this class with your regular teacher is. . . good (mean)	85				82
C7Q10	Teacher grades fiarly (mean)	80				72
C4Q6	% satisfied with degree that teacher "likes us"	80				72
C3Q5	Perceiving that the teacher feels it is good to help other students (mean)	78				74
C3Q7	Perceiving that the teacher feels getting along with other students is important (mean)	69				50
C7Q3	% pretty or very interested in this class	64				49
C4Q9	% satisfied with degree that teacher "trusts us"	52	41	37		58
C4Q5	% satisfied with degree that teacher "asks us how we feel"	55				38
C6Q12	Students tell the teacher how they feel	52	38			64
C6Q8	Students follow the teacher's directions (mean)	40	47	66		86
C6Q1	Students all take part in classroom discussions (mean)	38			+49	41
C9Q9	% who consider dropping out of school (aren't sure they won't)		-83			75
C7Q5	Perceive that few students in this class skip school sometimes (mean)		82			69

Table 1 (Continued).FACTOR ANALYSIS OF HIGH SCHOOL CLASS CHARACTERISTICS

Item #		Loadings				
		I	II	III	IV	h^2
C6Q9	Students work well with one another (mean)		74			75
C6Q7	Students like each other (mean)		73			70
C9Q7	% probably or definitely going to college		71			52
C9Q5	% sent out of class for misbehavior more than once in their school careers		-60			42
C7Q7	% feeling books are a good way to learn		53	35		41
C6Q14	Students are well-mannered (mean)		51	66		81
C7Q11	% feeling this school is OK or good		45			22
C6Q3	Students behave themselves even when the teacher leaves the room (mean)		35	73		77
C6Q5	Students like doing schoolwork(mean)			+81		76
C6Q13	Students get into fights (mean)			-55		54
	Correlation between number of choices received from classmates as "best student" and as "leader"			43		22
C7Q2	Working hard these days in school (mean)			36		34
C6Q2	Students help one another with their schoolwork (mean)			-36	+44	39
	Number of students in the class				-73	59
C5Q6	Mean number of friends outside the class liked better than anyone in this class				-64	53
C7Q6	% saying that working with others is the best or a good way to learn				+57	43
	% of total variance explained	18	15	11	8	
	% of total factor variance	36	29	21	14	

Items with no loading greater than .35

C3Q1	Perceive that the teacher feels it is good to take part in classroom discussions (mean)
	Standard deviation of number of leadership choices received
	Correlation between number of leadership choices received and number of friends liked better than any member of this class.
C7Q4	School work is better than most others in this class (mean)
C7Q9	% saying teacher explains grades most or all of the time

* h^2 denotes the proportion of the variance in the item accounted for by these four factors.

# The exact working of the questions used in constructing these measured is shown in Appendix A. Item numbers are given in abbreviated form; thus "C6Q11" refers to Question number 11 on Form C-6. This practice will be followed throughout this report.

In our experience with factor analyses of group characteristics, one or more factors representing "morale," "cohesiveness", or solidarity" almost always emerge among the most important. (Cf. Hagstrom and Selvin, 1965). This is true in the present analysis, where the second factor can be labelled "Morale." Among the highly loaded items on this factor are some direct indicators of this, the degree to which students are perceived to work well with one another (loaded .74) and the degree to which students are perceived to like each other (.73). However, somewhat to our surprise, certain indicators of diviance also were highly correlated with this dimension. These include the proportion of the class who are thinking about dropping our of school (loaded .83). (This suggests that dropouts are more an effect of social integration than poor academic performance, but the small proportion of the 1318 students in our sample who have considered dropping out has made it impossible for us to analyze this in detail.)

The indicators of deviance highly loaded in this factor also include the degree to which students perceive that their classmates skip school sometimes (loaded .82) and the proportion of the class sent out by the teacher more than once in their academic careers for misbehavior (-.6). In our previous report we found that these indicators served well to measure the extent to which individual students were disruptive, and we expected them to be highly correlated with measures of classroom disorder. That they did not suggests that classroom order is not strongly affected by the presence in the class of students with disorderly histories; we shall examine this possibility in detail later.

Other indicators we expected to emerge on the morale factor failed to do so. We asked students how many friends outside the class they liked better than anyone within the class and computed the mean for each class. This correlated only .32 with the morale factor, suggesting that the factor is a better indicator of "social satisfaction" than "sociometric cohesion" (cf. Hagstrom and Selvin, 1965, "Two Dimensions of Cohesiveness in Small Groups"). (This measure was also used by Fox, Lippitt, and Schmuck (1964), but not as an indicator of classroom cohesiveness.)

We also computed the standard deviation, within each class, of the number of choices received by each student on the sociometric question, "Which four students in this classroom group do you like the most?" When this measure is large, some students receive many choices, others few, while when it is small, students receive about the same number of choices. Fox, Lippitt, and Schmuch (1964, p. 98), calling this a measure of the extent to which classes are "centrally structured" as opposed to "diffusely structured," found that it had a rank order correlation of -.33 with a measure of "positive group affect" in a sample of 27 classes. Thus, we expected this standard deviation to be negatively correlated with our morale factor. Instead, it has a positive loading of .29 on this factor. We are unable to account for our failure to replicate the findings of Fox, Lippitt, and Schmuch, although it may be a result of age, since most of the classes in their sample were in elementary schools.

The third dimension revealed is one of "Classroom Order." Among the highly loaded items are the degree to which students behave themselves even when the teacher leaves the classroom (loaded .73), the degree to which they follow the teacher's directions (.66), and the degree to which they like doing schoolwork (+.81). As noted, the perceived degree of skipping and the proportion sent out for misbehavior are not highly loaded on this factor, only -.06 and -.15 respectively. It is also interesting to note that the degree to which "Students help one another with their schoolwork" has a loading of minus .36 on this factor. This probably results from a common tendency to interpret "helping others" as cheating and is indicative of a common pathology in our schools.

Only a few items are highly loaded on more than one of the first three factors. These include the degree to which students follow the teacher's directions, the proportion satisfied with the degree to which the teacher trusts students, and the extent to which students are perceived to tell the teacher how they feel. These overlaps are quite consistent with the interpretations we have made of the factors.

The fourth factor can be interpreted as a dimension of "Classroom Participation" and may be an artifact of class size. Among the items highly loaded on this factor are the perceived extent of participation in classroom discussions (.49), the proportion of students who say that working with others is the best or a good way to learn (.57), and the degree to which students are perceived to help one another with their schoolwork (.44) - this last probably resulting from the tendency to interpret helping others as a form of legitimate behavior. As one might expect, the size of the class has a strong negative correlation with this dimension (-.73). We do not know why the mean number of friends outside the class has a high negative correlation (-.64) with this factor.

Adult Instruments

There are 13 questionnaires which were administered to the adults in the sample. These were divided into two, approximately equal (as to length) parts. The total adult package took about 1½ to 2 hours to complete. They are described here under major headings 1 - 13 (Adult Instruments).

A-1. Biographical information contains 17 biographical questions asking for such information as age, years of experience, educational background, father's occupations, etc.

A-2. Building structure contains a series of drawings of boxes to represent the school building; inside the boxes are various groupings of circles to represent the building staff. The respondent is asked to pick the drawing which resembles his or her building, indicate where he or she is among the circles and where the principal is. This provides an estimate of how closely or loosely knit the staff is and the existence of sub-groups, the degree of inclusion the individual feels, and whether the principal is included in any of the sub-groups or is an isolate.

A-3. Estimates contains four major sections which will be described separately (under a,b,c,d.).

a. Goals contains 20 items concerning the goals of the school system. In the first 10 items, (each of which is a statement of an educational goal) the respondent is asked to pick the four which are most important for the system and to rank these in order of importance.

On the next 10 items, simply a repetition of the first 10, the respondent is asked to rank the 4 most important goals as he thinks his superior would rank them. Since the person is also asked to name the superior, several discrepancy scores, both perceived and actual, can be obtained -- perceived discrepancy from superior, actual discrepancy from superior, and the accuracy with which subordinates perceive superior's goals.

The variables being measured are: (a) content of educational goals, and (b) three kinds of superior-subordinate goal discrepancies. (1) Actual discrepancy (AD) is defined as the discrepancy between the subordinate's actual goals and the actual goals of his immediate superior. (2) Perceived discrepancy (PD) is the discrepancy between the subordinate's actual goals and the ones he (the subordinate) perceives the superior as having. (3) Autistic discrepancy (AuD) is the discrepancy between the goals the subordinate perceives his superior as having and the goals he (the superior) actually has.

Hornstein and Callahan used the above goal discrepancy measures for predicting subordinate's feelings about their school system. The results of the study indicate that there are significant relationships ($p < .05$) between PD and feelings toward the organization ($r = -.29$) and AuD and feelings toward the organization expressed on a semantic differential instrument ($r = -.30$). The correlation between AD and feelings was -.27, which did not quite reach an acceptable level of significance. These findings mean that the greater the goal discrepancy between subordinate and superior, the more negative are the subordinate's feelings toward the organization. Intercorrelations among the discrepancy scores indicates that AD and AuD are related (r = .57) but PD is unrelated to these two.

Even though the goals as stated in this instrument are broad and general, teachers do differentiate between those which are basically academic and those which are socialization. Daoulos (see abstracts) asked two panels of 100 experienced teachers each to sort the ten goals according to whether they were academic or socialization goals. The first panel of 100 teachers were asked to sort the goals into three categories: (1) socialization (2) academic and (3) "Neutral." The results are contained in table 1.

TABLE 1

EXPERT PANEL "A"

CLASSIFICATION OF SCHOOL OBJECTIVES

	Socialization Goal Choices	Academic Goal Choices	"Neutral" Goal Choices
Reducing the dropout rate	78	16	6
Improving attention to basic skills in the first three grades	18	79	3
Improving attention to physical health and aafety of students	76	8	16
Increasing children's motivation and desire to learn	20	70	10
Improving learning opportunities for disadvantaged children	64	23	13
Improving the percentage of college attendance by seniors	19	67	14
Improving discipline in the behavior of "difficult" children	77	9	14
Improving the quality of student academic achievement at all levels	1	90	9
Improving children's adherence to moral, ethical, and patriotic standards	89	3	8
Improving learning opportunities for gifted or talented children	14	70	16

TABLE 2

EXPERT PANEL "B"

CLASSIFICATION OF SCHOOL OBJECTIVES

	Highest Social-ization 1	2	3	4	5	6	7	8	9	Highest Academic 10	Total Point Value
	Top Line: Arbitrarily assigned point values										
Reducing the Dropout Rate	8	12	21	24	18	6	5	4	-	2	404
Improving Attention to Basic Skills in the First Three Grades	-	3	1	4	13	8	20	17	32	2	722
Improving Attention to Physical Health and Safety of Students	5	14	26	31	8	10	3	3	-	-	380
Increasing Children's Motivation and Desire to Learn	2	10	4	6	2	4	11	11	14	36	743
Improving Learning Opportunities for Disadvantaged Children	2	12	12	10	29	15	8	4	8	-	497
Improving the Percentage of College Attendance by Seniors	-	-	1	4	14	31	15	23	8	4	676
Improving Discipline in the Behavior of "Difficult" Children	12	32	29	14	9	2	2	-	-	-	290
Improving the Quality of Student Academic Achievement at all Levels	-	1	-	2	2	2	2	13	24	54	906
Improving Children's Adherence to Moral, Ethical, and Patriotic Standards	71	14	6	2	2	2	2	-	1	-	170
Improving Learning Opportunities for Gifted or Talented Children	-	2	-	3	3	20	32	25	13	2	712

The second group of 100 teachers were asked to rank the same ten goals on a continuum with 1 being assigned to the goal having the highest socialization-orientation and 10 the highest academic orientation. The results are contained in table 2.

This combined methodology allowed Daoulos to reliably sort the ten goals as follows: The five becoming academic-oriented are:

A3Q8 Improving the quality of student academic achievement at all levels.
A3Q4 Increasing children's motivation and desire to learn.
A3Q2 Improving attention to basic skills in the first three grades.
A3Q10 Improving learning opportunities for gifted or talented children.
A3Q6 Improving the percentage of college attendance by seniors.

Those which are socialization-oriented are:

A3Q9 Improving children's adherence to moral, ethical and patriotic standards.
A3Q7 Improving discipline in the behavior of "difficult" children.
A3Q1 Reducing the dropout rate.
A3Q3 Improving attention to physical health and safety of students.
A3Q5 Improving learning opportunities for disadvantaged children.

b. Rewards two questions ask for the perception of the actual reward system and the ideal reward system. The discrepancy between these two provides an estimate of the individual's satisfaction with the way people are rewarded for the work they do.

Daoulos used the same two panels of 100 teachers each to sort the items in this rewards measure into intrinsic and extrinsic types of rewards. The outcomes are contained in Tables 3 and 4.

Table 3

Expert Panel "A" Classification of Promotional Characteristics

	Extrinsic Choices	Intrinsic Choices	"Neutral" Choices
Quality of work done.	5	89	6
Quantity of work done.	19	64	17
Dependability.	5	85	10
Imaginativeness, inventiveness, creativity.	8	80	12
Seniority.	88	4	8
Formal Education.	61	21	18
How well one is liked by his immediate superiors.	78	14	8
How well one is liked by people in the central office.	91	3	6

TABLE 4

EXPERT PANEL "B"
CLASSIFICATION OF PROMOTIONAL CHARACTERISTICS

	Most Extrinsic	Top Line : Arbitrarily assigned point values						Most Intrinsic	Total Point Value
	1	2	3	4	5	6	7	8	
Quality of Work Done	-	-	-	6	7	8	22	57	717
Quantity of Work Done	2	4	12	13	33	17	15	4	502
Dependability	-	3	3	16	20	32	20	6	559
Imaginativeness, Inventiveness Creativity	-	5	4	4	8	18	32	29	642
Seniority	20	19	29	21	7	4	-	-	288
Formal Education Completed	4	19	25	20	11	11	6	4	392
How Well One Is Liked By His Immediate Superiors	13	34	20	12	8	8	5	-	312
How Well One Is Liked By People In The Central Office	61	16	7	8	6	2	-	-	188

The two separate sorts resulted in the reliable classification of goals as follows:

Intrinsic rewards are:

A3bQ1	Quality of work done.
A3bQ4	Imaginativeness, inventiveness, creativity.
A3bQ3	Dependability.
A3bQ2	Quantity of work done.

Extrinsic rewards are:

A3bQ8	How well one is liked by people in the central office.
A3bQ5	Seniority.
A3bQ7	How well one is liked by his immediate supervisors.
A3bQ6	Formal education completed.

c. Aspirations contains 3 items dealing with the person's work aspirations and the probability of achieving these in the present system.

d. Morale - 10 items designed to measure morale from various points of view including feelings of involvement and alienation, satisfaction with one's job, etc. Nine of the items are 5-point scales. The other item was a kind of projective technique in which the individual was asked to estimate the percentage of people who left the system for negative reasons during the year. The rationale of this latter item is that people with low morale will tend to think that many people leave the system because of dissatisfaction. Daoulos (see Section IV) has also used these items as a measure of group cohesiveness.

A-4. Do's and Don'ts contains 27 items designed to measure the perceived inter-personal norms of the system and the individual's own attitudes toward these norms. Each item contains a statement of something a person might say or do. The respondent is asked to estimate the percentage of people in the system who would feel that you should or should not do or say the thing in question. Then the person is asked to indicate how he feels about each of these. In addition to estimating the norm of the system, a scoring system has been worked out to estimate the extent to which the individual perceives himself to be conforming to or deviating from the norms. This is a discrepancy score between own feelings and perceived others' feelings. Actual conformity and deviance also can be estimated by finding the discrepancy between own feelings and the summation of all others' own feelings.

Perceived organizational norms are measured by this instrument with an emphasis on norms which govern interpersonal relations with others -- the style component of role performance, in effect. The norms can be seen as the "meta-goals" (cf., W.E. Bennis, "Goals & meta-goals of laboratory training") underlying laboratory training approaches. On an a priori basis, certain of the items were designated as measures of the following norms:

a) Awareness. Sensitivity to or awareness of what is happening in a situation. Items 1 and 13.

b) Authenticity. Openness about one's feelings and reactions. Items 2, 14, and 25.

c) Trust. The degree to which individuals are both trustworthy and trusting. Items 3, 15, and 27.

d) Inquiry. The degree to which individuals are exploring, skeptical, questioning about things. Items 4 and 16.

e) Objectivity. The degree to which individuals face problems squarely, on their merits, using data as the basis of problem resolution. Items 5 and 17.

f) Collaboration. Relating on an even-status basis, inviting joint work and accepting such invitations from others. Items 6 and 18.

g) Changefulness. Openness to new ways of doing things. Items 7, 19, and 26.

h) Altruistic Concern. Feeling for and with other persons in any encounter. Items 8 and 20.

i) Consensual Decision-Making. Fullest possible use of data from all in making decisions. Items 9 and 21.

j) Competence-Based Power. Influence exerted primarily on the basis of who has knowledge, data, and skill about the problem at hand, other than on organizational position, charisma, etc. Items 10 and 22.

k) Emotionality as Data. The feelings and reactions of self and others in an interpersonal situation considered as legitimate data, to be used in decision making. Items 11 and 23.

l) Individuality. Valving of unusual, deviant, diverse, creative ways of doing things. Items 12 and 24.

In addition to the perception of other's feelings, the instrument measures own feelings (checked responses) with respect to these norms. By using both modes of responding (i.e., perceived feelings of others and own feelings) it is possible to obtain scores on the variables of subjective conformity and deviance, and objective conformity and deviance. (See Callahan abstract) The extent to which the individual reports that he is in accord with or contravention to the perceived norms of the system defines subjective conformity and deviance. Objective conformity and deviance are defined in terms of the degree of discrepancy between the individual's own feelings about the norms and the actual feelings of other persons.

Scoring procedure for conformity and deviance.

Perceived conformity (PC) is operationally defined as the extent to which the individual endorses the prescriptions or proscriptions which he perceives the majority of others to have endorsed. Perceived deviance (PD) is the extent to which the individual's endorsement is in contravention to the perceived majority. Special weight is given to the size of the majority which the person sees himself opposing or agreeing with about a norm. For instance, an individual would perceive himself to be more of a deviant if he sees himself opposedto a 95% majority than if he were opposed to only a 55% majority. Thus, on a given item if the person checks (own feelings):

a) a should or should not which he perceives 80% or more of the people in the system to have endorsed a score of +2 is given for that item;

b) a should or should not which he perceives less than 80% but still a majority (50% or more) of the people to have endorsed a score of +1 is given for that item;

c) a should or should not which is opposed to the perceived large majority (80% or more) a score of -2 is given;

d) a should or should not which is opposed to a perceived small majority (described in b) a score of -1 is given;

e) the no feeling column, or if there is no majority (50% or more) perceived to have endorsed a should or should not, a score of 0 is given.

An individual's PC score is the sum of all plus item scores and PD is the sum of all minus item scores. Combining the PC and PD scores and dividing by the number of items (n_i) contributing to them (items receiving a score of 0 are not included in (n_i), provides a perceived conformity index (PCI). Arithmetically the PCI is defined as the algebraic sum of PC plus PD divided by n_i. Thus, a positive PCI indicates that the individual perceives himself to be more conforming than deviant, while a minus index shows that he feels he is mostly deviant with respect to these norms.

In order to estimate the "actual" norms of the system the distribution of all subjects' own feelings for each item is established. Actual conformity (AC) and actual deviance (AD) are derived from these summated attitudes of the system members. On a given item, if an individual's own feelings are in accord with the attitudes of a majority of system members or not in accord with this majority, a plus or a minus score is correspondingly given. The weights assigned to items and the establishment of the AC and AD scores follows the same procedure as for PC and PD. The actual conformity index (ACI) is defined as the algebraic sum of AC plus AD divided by the number of items (n_i) contributing to these scores.

Reliability and Validity.

The following are the average item test-retest correlations of the responses of 34 school superintendents (collected by Dan Callahan). The interval between testings was one week; 27-item form used. Should responses: average r_{tt} = .451 range = .050 to .734. Should not responses: average r_{tt} = .415 range = .010 to .747. No Feeling responses: average r_{tt} = .257 range = .029 to .576. The results of this study suggest that items 5, 6, 9, 16, 19, and 24 are of questionable reliability since their r_{tt} values are not significantly greater than zero. In addition, it looks as if the "no feeling" response, rather than being a possible measure of uncertainty or anomie as had been thought, is instead a kind of vague residual category, and is not reliable.

However, the small n of this study requires one to be cautious in the interpretation of these results. That is, the discarding of items because of unreliability should await a test-retest study involving a much larger number of subjects.

Item intercorrelations on the earlier 24-item form were run by Matt Miles and Steve Schiavo on four samples of personnel taken from all levels in two school systems with Ns of 66 and 75 at two times in one system, and 139 and 146 in another. The "should" or "should not" score was intercorrelated, using whichever response was believed to be the "good" (i.e., supportive of lab training norms) direction. Item intercorrelations ranged from about -.3 to .6, with an approximate mean of .2.

In two school system studies, though item reliabilities were naturally even lower over a three-month interval than the two-week interval described above, it was noted that average item scores (summed across all respondents) stayed relatively stable. The mean percentage points shift per item in one system was only 1.6 points (N = 66-75) in the other (N = 134-146) it was 0.9. In these two populations, item shifts of 3 to 5 points would ordinarily be required for statistical significance.

Barbar Benedict (Teachers College, Columbia University) studied a population of 21 graduate students and faculty members in a single department before and after a five-day training lab. Significant changes were found on 11 of the item scores in the "good direction" (estimates of others' endorsement). Own feelings changed little. The average percentage point shift per item was 8.

Test-retest reliabilities were obtained for the conformity and deviance measures. These data were collected from 74 school system personnel including teachers, principals, directors, curriculum workers, and administrators. The interval between testings was approximately two weeks. The six measures (defined above) obtained these reliabilities: PC = .817, PD = .577, PCI = .664, AC = .619, AD = .526, and ACI = .533.

There were responses of 91 individuals to the first of these two testings; using these data, item-to-total score correlations were obtained (perceived conformity scores only). In this analysis it was found that items 7 and 15 were not significantly related to PC, PD, or PCI.

The only information about validity for the conformity and deviance measures derives from a comparison of males and females in this sample. Predicting that females are more conforming than males, as has been shown in numerous other studies, it was found in the present study that females scored significantly lower on PD ($p < .01$) and significantly higher on PCI ($p < .01$). On none of the other 4 measures did the two groups differ significantly but the differences between them were in the predicted direction. Thus, females did perceive themselves to be more conforming than males.

Benedict has completed a study of the social desirability side of the instrument. A sample of school personnel was asked to indicate the desirability of a particular item response for a "good school system". A sample of human relations trainers was asked to indicate the desirable response for "a T-group", and for "a school system". As might be expected, the trainers' responses to these two settings were closer together than either was to the school personnel's.

A six-item Guttman scale for openness on Do's and Don'ts consists of items 25, 10, 14, 13, 17 and 2. Each attitude item (this is the self score) is scored 1 or 0. 1 is given in the obvious direction - i.e. - what you would predict a priori. i.e., item 25: Tell other people what they want to hear, rather than what you really think, is a SHOULD NOT item, and people checking "should not" get a score of 1. The other items are all SHOULDS, except for 14, which is a SHOULD NOT. Person's score is sum of items he "gets right", and thus ranges from 0 to 6. The scale reproducibility is .89.

A four-item scale for attitude openness includes only items 25, 10, 14 and 2. Scoring as above, range of scores 0 to 4. Reproducibility is .93.

A-5. Relationships is a sociometric questionnaire which asks for nominees from among system members who are best in terms of 4 dimensions - innovative ideas, liking, helpfulness, and power. It is possible to score this for such things as choices received, mutual choices, etc. and, in addition, sociograms can be drawn.

The variable(s) being measured are:

Sociometric choices along the dimensions of innovative ideas, liking, helpfulness, and power.

The data can be used, by means of the initials, in the usual matrix form (done by hand or machine), and the usual wide variety of indices can be computed (see, for example, G. Lindzey & E. F. Borgatta, Sociometric measurement, in G. Lindzey (Ed.), Handbook of Social Psychology, (Cambridge: Addison-Wesley, 1954.), pp. 405-448. Sociograms can also be drawn. Warning: if analyses are to be done in which complete sociometric analysis is involved, or in which received choices are to be summed for people, it is obviously essential to establish that the same initials (e.b., J.B.G.) do in fact refer to the same individual. This must be done by use of a system directory, with reference to job and location given by the respondent.

Sociometrics are ordinarily given to all members of a system, group, etc... Sociometric data based on a random sub-sample (e.g., 30%) should be interpreted with caution when indices involving choices received (or matrices involving other choices received) are used.

The data can also be used to study characteristics of choosers. A variety of indices can be derived. Ex: percentage of choices in own building, percentage of choices above own level, etc.

Other simple indices can be used. Ex: percentage of teachers is a building sample who nominate their own principle as having innovative ideas; percentage of total nominations for item 4 (influence) which are teachers, as contrasted with higher-ranking jobs; percentage of nominations on item 1 (innovativeness) which also appear on item 4 (influence).

No studies were actually conducted using this instrument due to prohibitive costs of coding. But, the following scoring procedure was developed and tested.

For each system a set of Roster cards were punched containing building number, position code number, I.D. number and initials.

These roster cards were then sorted into 3 lists. One list was for Central Office Personnel. These were arranged in sequence order of position code number, and in alphabetical order within each position code number. This was done separately for each of the three systems.

The second list was sorted into building groups and then within each building by sequential order of position, and in alphabetical order within each position code.

The third list was a master list containing all but Central Office Personnel together. Again, the arrangement was by sequential order of position code number, and by alphabetical order among all those who had the same position code. All this was done to facilitate the coding in the following way.

The instrument asked the question, "Is this person in your (respondent's) building, central office, or another building?" If in a central office, then after his position code number was ascertained his initials would be located among those of that position code in the central office. The appropriate ID number could then be recorded. If the response was "in my building" the coder would check to see what respondent's building was and locate that building in the second list, search the alphabetical list in the proper position code category, and enter the proper ID number. The master list would be used any time the response was "in another building." The same procedure would be followed--locating the initials within the alphabetical list of all personnel of a particular position code number.

After the punched cards were sorted and arranged in these groups, printouts were made for each system for each coder. These were done in the easiest way possible for the coder, so that once a coder knew a person's position code number he could locate that person's initials in the alphabetical list for that position code and quickly spot the ID number. What list the coder would search depended on two things: (1) What school system was involved (Trenton, Hewlett Wilton) and the building number as gotten from the previously mentioned quest'on: either central office, the same building as the respondent, of any of the other buildings. There were, therefore, nine coding guides for each coder. 1 for central office, 1 for a building-by-building list and 1 for a master listing for each of the three school systems.

A rough cost analysis showed that this was of converting sociometric choices made as initials to subject IDs was in fact cheaper (and probably quicker) than trying to program a computer for the entire job.

A-6. Meetings contains 37 6-point items designed to measure problem solving adequacy of work groups. In addition to the 37 items,there are two items which ask the person to estimate the percentage of time spent on problem-solving, as opposed to information giving, and the percentage of time he thinks should be devoted to these two activities.

Scoring for the meetings instrument proceeds as follows: 15 of the items are worded in a positive direction; the sum of responses on them can be seen as a score implying the presence of behaviors indicating problem-solving adequacy, such as "When a decision is made, it is clear who should carry it out and when."

The remaining 22 items are worded in a negative direction, but scored reverse. This sum thus implise the relative absence of behaviors usually thought to represent inadequate problem-solving, such as "People are afraid to be openly critical or make good objections." The sum of these two scores is used as an over-all score representing problem-solving adequacy.

The items were written to cover all stages of problem-solving as usually construed, plus several continuing functions (summarizing, process analyzing, participation), plus items dealing with positive and negative climate. A complete listing of items and their purported focus of attention is as follows:

Item content Problem-solving functions	Item Numbers Positive	 Negative
Agenda clarity and control	12	3, 5
Problmm definition, diagnosis	1, 4	15
Solution generation	23	6
Solution discussion	7	2
Decision-making resolutions	27	24, 35, 36
Implementation	18, 30	11
Follow-up	14	33
Solution adequacy, productivity	25	21, 28

Item Content	Item Numbers	
	Positive	Negative
Other Continuing Functions		
Orientation, summarizing	10	8, 19
Participation, resource utilization	9	13, 16, 17, 26, 34
Process analysis	20, 29	31
Climate, sentiments	37	22, 32

Columns 25-27 are used to get background data on meetings being assessed. Items 38 and 39 were developed because an early version of this instrument encountered much commentary from respondents that little or no problem-solving went on, and that meetings were mainly devoted to announcements, etc. These two items can be used to assess perceived amount of problem-solving (see Collins abstract). The discrepancy between 38 and 39 gives an idea of respondents' degree of satisfaction with the present amount.

Test re-test data were collected on an earlier 28-item form by Dan Callahan and Matt Miles (Teachers College) on a population of 80 school personnel from one system. The average item reliability was .6; only 3 items showed reliability under .45; they were dropped or re-written. Only 4 items showed unsatisfactory item-to-total correlations, (under .4), and they have also been dropped or re-written for the present version. A cluster analysis suggested four major clusters dealing with diagnosis, problem-solving process, decision-quality, and use of group resources. The average item intercorrelation was about .3. The positive sum correlates .89 with total score, and the negative sum .90 with total score. Positive and negative sum correlate .61 with each other, thus do seem to be contributing something different to the total.

Construct validity of the meetings instrument was explored through the use of four separate factor analyses. Callahan identified three factors which he named: "Decision-Making Effectiveness;" "Problem-Solving Adequacy;" and "Commitment to, or Involvement in, The Meeting." The delineation of these factors was based upon certain similarities in the four factor analyses performed. The criterion for including an item in a factor was that it must have a .50 or better loading in at least 3 out of 4 analyses. The results of this analysis of the factor analyses are shown in the enclosed table.

Factor Analyses of Meetings Instrument
.50 or Better Loadings in at Least
3 out of 4 Analyses

Item #	Factor I				Factor II				Factor III				h^2			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
1					-59		73	-59					54	47	63	46
4						.71	54	-52					30	52	40	32
7					-67		74	-71					55	50	64	66
11	-63	.61	.55	73									47	48	43	62
14					-58	.55	61						50	49	48	43
16										-54	69	70	54	43	56	52
17										-56	69	65	67	51	62	65
18	-53	.60	52	73									49	42	58	60
19	-65	.66	72	59									47	46	53	50
20						.69	56	-56					22	52	44	33
21	-70	.64	59										50	51	36	39
23					-57	.55	73	-76					38	58	57	60
25					-55	.57	70	-52					50	49	60	68
26									-53		68	57	67	33	58	51
27					-53		69	-61					47	51	54	47
28	-64	.58		61									57	53	53	54
32	-61	.51	52										53	52	55	47
35	-56	.50	67	58									34	49	50	52
36	-72	.78	71	68									60	66	59	58

A= Original Wisconsin Analysis	n= 625
B= Analysis of System #13 teachers	n= 48
C= Analysis of System #41 teachers	n= 491
D= Analysis of System #12 teachers	n= 122

The items from the four factor analyses are grouped below: (For further study using this instrument - see Collins)

Decision-Making Effectiveness

Item # Factor I

A6Q11 Decisions are often left vague--as to what they are, and who will carry them out.

A6Q18 When a decision is made, it is clear who should carry it out and when.
A6Q19 There is a good deal of jumping from topic to topic--it's often unclear where the group is on the agenda.
A6Q21 The same problems seem to keep coming up over and over again from meeting to meeting.
A6Q28 The results of the groups work are not worth the time it takes.
A6Q32 People feel antagonistic or negative during the meeting.
A6Q35 There are splits or deadlocks between factions or subgroups.
A6Q36 The discussion goes on and on without any decision being reached.

Item #	Factor II
A6Q1	When problems come up in the meeting, they are thoroughly explored until everyone understands what the problem is.
A6Q4	People ask why the problem exists, what the causes are.
A6Q7	The group discusses the pros and cons of several different alternate solutions to a problem.
A6Q14	The group discusses and evaluates how decisions from previous meetings worked out.
A6Q20	From time to time in the meeting, people openly discuss the feelings and working relationships in the group.
A6Q23	When the group is thinking about a problem, at least two or three different solutions are suggested.
A6Q25	Some very creative solutions come out of this group.
A6Q27	When conflicts over decisions come up, the group does not avoid them, but really stays with the conflict and works it through.

Item #	Factor III
A6Q16	The same few people seem to do most of the talking during the meeting.
A6Q17	People hesitate to give their true feelings about problems which are discussed.
A6Q26	Many people remain silent.

A-7. Your principal is an instrument designed by Gross and Herriot (from their book, Staff Leadership in Public Schools. New York: John Wiley & Sons, Inc., 1965) for measuring : 1) Executive Professional Leadership of the principal; 2) Managerial Support given to the teachers by the principal; and 3) Social Support the principal gives to teachers. There are 24 items on 6-point scales in which the teacher gives his or her perceptions of the principal. The above three scores are derived from the individual item scores by the Guttman scaling method. There are 12 items contributing to the first score and 6 items contribute to each of the support scores.

Coefficients of reproducibility for the above three scales are reported by Gross and Herriott as follows:

Executive Professional Leadership	.933
Managerial Support Score	.934
Social Support Score	.937

A complete discussion of the development of these scales, the scoring procedures used, and the validity is contained within the above mentioned book. The procedures and information used in the COPED study are described below.

EPL ITEMS

Items	Pos. Response		
A7Q1	6, 5, 4	If respondent gives at least 2 out of 3 positive responses, give him 1 pt.	(See p. 27-30, Gross & Herriott.)
A7Q2	6, 5, 4		
A7Q3	6, 5, 4		
A7Q4	6, 5, 4		
A7Q5*	6, 5	Same	
A7Q6	6		
A7Q7	6, 5		
A7Q8	6	Same	
A7Q9	6		
A7Q10	6		
A7Q11	6	Same	
A7Q12	6		

TOTAL EPL Score (May range from 0 to 4)

Managerial Support Items

Items	Pos. Response		
A7Q13	1	(Give 1 pt. for each item with a positive response)	(See p. 197-198, Gross & Herriot).
A7Q14	1		
A7Q15	6		
A7Q16	1		
A7Q17	1		
A7Q18	1		

TOTAL Managerial Support Score (may range from 0 to 6)

Social Support Items

Items	Pos. Response		
A7Q19	6	(Give 1 pt. for each item with a positive response)	(See p. 195-196, Gross & Herriot).
A7Q20	6		
A7Q21	1		
A7Q22	6, 5		
A7Q23	6		
A7Q24	1		

TOTAL Social Support Score (may range from 0 to 6)

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* This item has incorrect content on pg. 28 of Gross and Herriott. The correct content, "Helps to eliminate weaknesses in his school", is given on p. 170, Appendix A, and is used in our version of the instrument.

Relevant Findings From Gross and Herriott

a. Relationships between education course hours and EPL, and age and EPL, sex and EPL, etc.

   (1) Semester hours of educational administration courses was found to be negatively related to EPL scores, ($p < .02$). In addition, there were near-significant negative relationships between EPL and undergraduate semester hours of education courses as well as hours of graduate courses in education.

   (2) A significant ($p < .02$) negative relationship between EPL and age at time of first principalship.

   (3) A negative relationship between EPL and age. ($p < .01$).

   (4) A negative relationship between EPL and size of school population ($p < .04$).

b. Relationships with teachers and EPL

   (1) Positive relationships between EPL and the extent to which the principal permits his teachers to share in his decisions regarding:
   (a) theminimum level of satisfactory student performance,
   (b) evaluation of how good a job the school is doing,
   (c) determination of how teachers should be supervised,
   (d) developing policy for handling student discipline problems.

   These four were all related to EPL at less than the .001 level of significance.

   (2) A positive relation between EPL and the principal's egalitarian relationship with his teachers ($p < .02$).

   (3) EPL is positively related ($p < .001$) to the principal's social support of teachers, managerial support of teachers, and his support of teacher's authority.

c. Significant relationships were found between EPL and the following personal attributes of the principal. (Unless otherwise stated the relationship is positive.)

   (1) Evaluation of his ability to provide educational leadership to his staff ($p < .005$).

   (2) Self-assessment of managerial skills ($p < .04$).

   (3) Off-duty time principal devotes to his job ($p < .05$).

   (4) A negative relation of EPL and the importance attached to routine administrative tasks ($p < .07$).

(5) Principals with a service motive for becoming a principal have higher EPL scores than those without such a motive (p .005).

(6) Quality of principal's college work (p .001).

(7) Ratings of principal's interpersonal skills by teachers (p .001), and ratings by his superiors (p .001).

d. Organizational variables related to EPL

(1) Teacher morale - six indexes all showed significant correlation with EPL (p .001) ranging from .28 to .61. Average 4 = .44.

(2) Teacher Performance - 6 indices all significantly related (p .001) - high EPL goes with "good" performance. Average r = .30.

(3) Pupil's performance - only 1 of 5 indices showed a significant (p .05) zero order correlation interest in academic achievement (r=.14). First order partial correlations (with parental income partialed out) showed significant relations with 3 other pupil performances - behind grade level in reading (r= -.18), not prepared to do grade level work expected of them on entering class (r= -.18), and not mastering subject matter (r= -.18). For all 3 of these partials p .01. The average partial r = .19 for all 5 indices.

A-8. Coordinators and specialists is an adaptation of the items from Your principal which measure Executive Professional Leadership. This was done in order to get some estimate of the Leadership ability of coordinators or specialists.

A-9. Your immediate supervisor is another adaptation of the Executive Professional Leadership items so that principals could give their perceptions of their immediate administrative superior.

A-10. Influence is an instrument containing two 15-item scales (each item is a 5-point scale). The first set asks for the individual's perceptions of how much influence each of the 15 persons or groups has in determining educational matters. The person responds in terms of the influence exerted by the school board, the superintendent, the principal, teachers, students, parents, P.T.A., etc. The second 15 items ask for the person's ideal in terms of how much influence each of these 15 persons or groups ought to have in determining educational matters.

A-11. Innovations is a lengthy questionnaire which can be divided into three parts which will be described separately.

a. The first part contains 10 items which ask teachers to name innovation classroom practices which they have tried, whether they were original, where they heard about them, whom they told, how often they use them, and how much they know about the practices other teachers use. Thus, these questions measure the frequency of classroom innovations and the kind of and extent of communication about the innovations.

b. The second part contains a list of 12 new or unusual classroom teaching practices such as pupil participation in classroom teaching, involving pupils in community projects, role playing, etc. To each of the 12, the person states whether he or she has heard of it, has tried it, uses it regularly, and the number of teachers in the building who have tried it.

c. The third part contains a list of 20 innovations, such as programmed instruction, instructional television, open enrollment, etc. These practices are called system-wide innovations because adoption decisions are made at that level rather than at the classroom or building levels. The questionnaire measures the individual's perceptions of adoption the practice by the system, the effects on the respondent, respondent's use of the practice, and respondent's evaluation of the usefulness of the innovation. In addition, there are 4 items which ask what innovative ideas for the school system (beyond classroom practices) the respondent has had, to whom the idea was communicated, and was it adopted.

A-12. Reactions to the COPED staff has 31 5-point items which ask for the quantity and quality of the respondent's interaction with members of the COPED staff. It get at the perceived helpfulness, relevance and competence of the COPED staff. It also taps the individual's feelings about change and whether the changes attempted in the project are likely to be permanent.

A-13. Final reactions is a 6-item instrument designed to measure the time used by the respondent in filling out the questionnaire, feelings during the process, perceived ambiguity of the various instruments, and the respondent's perception of the purpose of the study. Not only did this provide evalative information about the instruments, it gave the respondent a chance to express whatever feelings the long and tedious task of answering the questionnaire may have engendered. Such information is valuable when undertaking the task of revising the instruments.

SAMPLING PROCEDURES

The fact that five COPED centers were dealing with 20 school systems necessitated the development of standard procedures for sampling personnel within the systems. One of the tasks accomplished by the measurement committee was to recommend a set of these procedures, a description of which follows.

Elementary children were selected on the basis of building, grade-level, and classroom. In small school systems all buildings have a fifth grade were selected, while in large systems, buildings have fifth grades were randomly chosen. Within each selected building 1 or 2 classrooms were included in the sample. Finally, all children in the sampled classrooms filled out the childrens' instruments. Fifth grades were selected because the students were old enough to answer the questionnaires, but they were not at the "senior year" in the building.

It was hoped that the number of classrooms sampled could be expanded for the spring testing, but this proved difficult with the funds available. However, both the New York and the Boston centers were able to expand. This sample expansion was designed to permit a check against test sensitization. That is, it allows the researcher to answer the question "Does the taking of the instruments in and of itself cause changes?" In order to test for this possibility, the responses of individuals who had taken the instruments before are compared to the responses of those taking them for the first time. Since the comparisons are made only on individuals from control systems (no intervention), any differences between these two groups are assumed to be result from having taken the instruments before -- i.e., test sensitization.

In the secondary schools the procedure was to randomly pick a time of day which was not the first nor last period, nor lunch, nor gym class. Then, among 11th grades, a random sample of classrooms within this time-period was chosen. The aim was to obtain a number of secondary classes equal to the number of elementary classes in each system. It was recommended that the same classes (identified by the classroom teacher) be retested at the second wave. Also, it was recommended that the number of secondary classes be expanded at the second testing.

In the adult wave 1 sample, it was recommended that a 30% random sample be selected from each building plus the teachers of the classes being sampled. (Teachers of the sampled classes had to fill out the teacher questionnaires as well as the adult questionnaires). The sample did not include non-professionals. It did include all (not just 30%) of the principals, high school department heads, central office administrators, and subject-matter curriculum directors. For the retest it was recommended that the adult sample be expanded to 50%. Certain administrative considerations in one of the school systems in the New York COPED area made it necessary to test all adults in both waves rather than random samples.

The actual sample finally collected is contained in the following tables:

TEST ADMINISTRATION PROCEDURES

The instruments were administered during October, 1966 and again in April, 1967. These two months were chosen, first, to avoid getting the beginning-of-the-year effects by allowing at least one month to pass; second, they were chosen to avoid end-of-year-effects by testing at least one month before the end of the school year; third, given the first two constraints, they were chosen to allow a maximum of elapsed time between the pre-and post-tests.

Each COPED center was asked to keep a detailed log of all administrations of the instruments; where, how and by whom administered; whether the adults were"tested" on school time, their free time, or after school. It was suggested that all instruments be filled out on school premises.

It was recommended that all student instruments be administered by someone other than the classroom teacher in order to increase students' feelings of confidentiality about the study. A person selected to administer might be from the COPED staff, another teacher, teacher aide, psychologist, mother, etc. It was suggested that these "administrators" receive training. The committee asked that high school students be brought to a central location (cafeteria or auditorium) and be seated in their classroom groups for the instrument administration. Elementary students were to fill out the instruments in their own classrooms. The adult package was to be administered in a central location or locations, and no portion of it was to be given out to be completed at home.

RESEARCH DESIGN

In addition to sampling and testing procedures, the measurement committee addressed itself to some related research design issues. It recommended that in each regional center there should be one control school system which would not be intervened in, but which would respond to the questionnaires. The characteristics of the control system in a particular center should be comparable to those of at least one other system being worked with by that center. Some characteristics used for comparing systems were size, wealth, location (urban, suburban, or rural), etc. Feedback to the control system about their responses would be withheld (at least) until after the second test administration and, if feasible, until after the proposed third administration a year later.

The committee also developed guidelines concerning survey feedback -- one of the more popular of intervention strategies. Each center was asked to maintain a feedback log that would keep track of the following information:

1. the specific item or items fed back and to whom it or they were fed back;

2. whether the system received consultation on application of information fed back;

3. whether the system acted on the consultant's recommendation;

4. any additional information on how the results were transmitted;

5. feedback was to include only variable scores where possible (rather than single items);

6. fed back items or indices should be recorded along with alternative items or indices measuring the same variable which are not fed back.

This feedback policy was developed because the research and training staffs were split about how the data from the instruments were to be used. The training staff wanted to use the data by feeding them back to school system people in their training programs. (See Miles, et.al. for a description of this change strategy.) The research staff objected to this use of the data because it would contaminate them for use as criteria against which the effectiveness of the change efforts might be evaluated. (This is the problem of reactivity discussed by Campbell and Stanley, 1966.) The foregoing guidelines represent COPED's solution to the dilemma which occurs when service to the client threatens the scientific validity of the information being collected.

Definition of Variables

With the data collection problems solved and the initial data collection well underway, the Research Council (which had grown out of the original measurement committee) turned its attention to the development of hypotheses in the Fall of 1966. Included in this was the task of explicitly defining the change variables. That is, the instrument package was designed as a "net" of specific measures, but in order to test hypotheses, a limited set of central variables had to be nominally and operationally defined. A variable sub-committee was assigned the task of developing such definitions.

The variable committee devoted most of its time to the definitions of process variables rather than criterion variables, on characteristics of systems, or descriptions of intervention strategies. Process variables are the ways in which system personnel carry out the tasks of running a school system. Priority was given to the process variables rather than criteria of effectiveness variables because these would be affected first by COPED interventions, and only after these changed, would system effectiveness change. Following are the nominal definitions of the process variables. (The operational indicators for each variable are found in the appendix.)

Self Renewal

A social system is self-renewing to the extent that it continually reappraises goals, taking into consideration internal and external factors, evaluates its activities, and acts upon its evaluation. A self-renewing activity is any process initiated and continued by a social system for the purpose of strengthening, developing, enhancing or increasing its capacity to cope with its environments and achieve its goals.

Explication of Terms

Reappraises - periodically bringing up for examination in terms of how well it helps to accomplish goals.

Internal Factors - make up of the social system, physical plant, group membership, and types of human resources available.

External Factors - finances, community resources, demographic characteristics.

Evaluates - collects data and compares to desired outcomes.

Acts - given the results of reappraisal and evaluation, the social system makes new decisions to maximize the effectiveness of efforts to achieve goals.

Problem-Solving Adequacy

A social system solves problems adequately to the degree to which it uses skills of:

a. scanning the problem identification;

b. diagnostic procedures using available information and gathering what else is needed;

c. generating solutions by using all available resources;

d. discussion of alternative solutions;

e. decision-making;

f. implementation;

g. evaluation and recycling these skills;

h. diffusion.

Explication of Terms

Adequately - the problem remains solved, does not recur and contributes to goal achievement.

Social System - a social system does not itself solve problems; it is the individuals who make up its various groups - board, administrative council, faculty, etc. - who do the problem-solving.

Influence

The process variable "influence" was separated into four component parts. The parts are: actual, perceived, desired, attempted. Actual influence is the degree to which an individual can modify the attitudes or behavior of another person or persons. Perceived influence is the degree to which an individual believes he can modify the attitudes or behavior of another person or persons. Desired influence is the degree to which an individual wishes to modify the attitudes or behavior of another. Attempted influence is the degree to which an individual tries to modify the attitudes or behavior of another.

Learning Atmosphere

A good learning atmosphere exists in the degree to which children and adults 1) want to learn, 2) are aware of internal and external needs, 3) attempt to use internal and external resources, and 4) support others who want to learn.

Innovativeness

Innovativeness was subdivided into three parts: 1) Innovative behavior is the number and variety of new and/or untried behaviors attempted; 2) innovative attitude is the degree to which an individual is willing to consider new and/or untried ideas; and 3) innovative search activity is the degree to which an individual seeks out new and/or untried stimuli.

Communication Adequacy

Communication adequacy is the degree to which within a classroom, building, system or community, information is transmitted between children, teachers, other adults, groups, roles, and community with minimal distortion.

Relationship Adequacy

Relationship adequacy is the degree to which the relationships between individuals in a social system are characterized by openness, interdependency, and inclusion.

Explication of Terms

Openness - the degree to which an individual freely expresses his feelings and ideas when in the presence of another person or persons.

Interdependency - the degree to which individuals make maximum use of each other's resources and utilize these resources to identify and fulfill needs.

Inclusion - the degree to which an individual feels that he is a viable and integral part of the activities and needs of another person or persons.

Revised Research Plans

When it became apparent that COPED was not to be refunded, staff members interested in research began to face the problem of making maximum use of the data already collected. One of the issues facing us was that, despite having two data collections, enough time had not elapsed after the interventions into the school systems to be able to measure the effects. That is, in the original design a third data collection would have allowed a year to elapse after the interventions had been completed. As it was, the second wave of data were collected while some of the intervention work was still going on, and thus was not very useful as the post-test. At that time, it was decided that only correlational type studies could be done on the data. A grant was acquired in order to set up a data bank and to carry out some studies on the data. The monumental task, already in process, of coding, tabulating, punching, and cleaning the data was completed under this new grant.

In the Fall of 1968, a national COPED meeting was held in Boston for the purpose of delineating some of the research tasks to be accomplished. A new research council was established at this time which took responsibility for evaluating and revising the instrument package and overseeing the research studies being done on the data. At this meeting some of the Michigan COPED staff described their plans for creating diagnostic and feedback packages. (These will be described in a separate chapter.) Following is a description of the instrument evaluation work and a summary description of the studies which have been completed and those still in process.

Instrument Evaluation

Early in the history of COPED it became apparent that little was known about the reliability and validity of many of the questionnaires. Reactions of individuals taking the instruments suggested that items were ambiguous. The length of the total instrument package needed to be cut down - it seemed too large a task to ask of someone. The fact is, the size of the instrument package made data collection one of the major, possibly negative, interventions into the school system worked with. There was a danger that negative reactions to the instruments would spoil the validity of the research results.

The data bank was a major source of information used in the instrument evaluation work. Based upon item distributions, standard deviations, and means, items which were not discriminating were elimated. Factor analysis helped us decide whether the items of an instrument held together in any meaningful fashion. Analysis of variance and similar techniques helped us to estimate the reliability of some instruments. Some of the completed studies provided clues about the validity of some measures. Finally, comments of people who had taken the instruments, as well as our own critical powers, helped us to eliminate those portions of the instrument package which were too ambiguous or meaningless.

As a result of this work on the instruments, a revised package of instruments has been developed. (The revised questionnaires are contained in the appendix.) In the new package all instruments received some revision, if only the instructions for their use. Some had items deleted or reworded. The format of one questionnaire, Do's and Don'ts, was completely revised. Three of the adult instruments were dropped from the revised package. In addition to the revisions of the student questionnaire, items which parallel items in the adult package (e.g., goals and rewards) were added. In general, the instrument package is now much less ambiguous and considerably shorter.

COPED AREA & SYSTEM CODE #	NUMBER OF RESPONDENTS						NUMBER OF CLASSES			NUMBER OF BUILDINGS		
	ADULTS			CHILDREN								
	MALES	FEM.	TOTAL	MALES	FEM.	TOTAL	ELEM.	SECOND.	TOTAL	ELEM.	SECOND.	TOTAL
Ann Arbor 11	107	169	276	357	434	788	16	12	28	22	4	26
12	23	38	61	61	54	115	2	1	3	1	2	3
13	300	337	637	775	737	1512	31	23	54	35	7	42
15	90	125	215	274	289	563	15	7	22	21	4	25
Boston 21	8	29	37	*						1	1	2
22	15	18	33	*						2	1	3
23	25	50	75	*						5	1	6
26	65	65	130	*						22	8	30
27	3	18	21	*						4	1	5
New York 41	201	675	876	*						15	6	21
42	35	33	68	*						5	2	7
43	71	85	156	*						4	3	7
Madison 51			161	306	254	560	12	10	22	16	4	20
52			59	144	115	259	5	4	9	7	2	9
53			20	55	42	97	2	2	4	2	1	3
54			139	261	235	496	11	9	20	13	3	16
55			34	138	106	244	5	4	9	4	2	6
56			74	160	102	262	7	6	13	7	3	10
57			25	154	114	268	5	4	9	8	1	9
58			111	266	186	452	11	9	20	16	3	19
Florida 61	31	35	66	469	484	953	0	39	39	0	1	1

* Data from these subjects were not used in the current COPED studies, so actual numbers were

DESCRIPTION OF ADULT SAMPLE (PERCENTAGES)

COPED AREA & SYSTEM CODE #	Class-room T.	Dept. Heads & Superv.	Serv-ice Roles	Prin. & Asst. Prin.	Admin.	Other	Total	RACE				
								N.	W.	O.	Other	Total
Ann Arbor 11	52	15	9	12	3	9	100%	2	98	0	0	100%
12	74	3	0	5	0	18	100%	0	100	0	0	100%
13	50	6	13	13	9	9	100%	.6	99	.3	.1	100%
15	65	3	8	13	3	8	100%	4	96	0	0	100%
Boston 21	87	3	5	5	0	0	100%	0	100	0	0	100%
22	85	3	3	9	0	0	100%	0	100	0	0	100%
23	77	3	3	9	1	7	100%	2	98	0	0	100%
26	57	2	5	32	2	2	100%	0	100	0	0	100%
27	86	5	0	9	0	0	100%	5	95	0	0	100%
New York 41												
42	66	12	7	10	4	1	100%	3	97	0	0	100%
43	64	10	13	4	5	4	100%	0	99	1	0	100%
Madison 51												
52												
53												
54												
55												
56												
57												
58												
Florida 61	86	2	4	3	2	3	100%	Not Ascertained				

COPED Area & System Code.No.	Religion (Percentages)					Description of Adult Sample S.E.S. of Parents (Percentages)							Tenure Status (Percentages)			
	P.	C.	J.	Other	Total	Prof.	White Collar	Skilled & Sm. Bus.	Semi-Skilled	Un-Skilled	Other	Total	Ten-ured	Pro-bation-ary	Other	Total
Ann Arbor																
11	85	11	0.4	3.6		20	10	58	5	7	2		61	15	24	
12	74	16		10		32	18	35	3	12	0		51	32	16	
13	70	17	4	8		21	17	42	10	6	3		48	20	31	
15	78	19	0.5	2.5		20	16	43	9	9	2		63	20	17	
Boston																
21	61	25	3	11		25	11	44	8	8	4		35	53	11	
22	27	61	3	9		25	9	56	9	0	0		39	58	3	
23	38	47	7	8		31	12	50	3	4	0		40	51	8	
26	25	60	6	9		19	11	57	7	4	2		78	21	1	
27	59	23	18	0		52	5	33	5	5	0		33	62	5	
New York																
41																
42	58	24	7	10		20	20	41	4	2	1		52	35	12	
43	27	20	46	7		25	13	51	5	3	3		69	30	1	
Florida																
61	Not Ascertained					23	14	56	5	7	1		52	33	15	

DESCRIPTION OF THE ADULT SAMPLE

COPED AREA & SYSTEM CODE NO.	MEDIAN AGE (IN YEARS)	TOTAL YRS. EXP. IN EDUCATION (MEAN)	LEVEL WORKING (PERCENTAGES)					TYPE UNDERGRADUATE (PERCENTAGES)						
			ELEM.	J.H.S.	H.S.	OTHER	TOTAL	NONE	TWO-YEAR	T. COLLEGE OR UNIT OF U.	OTHER PART OF U.	LIB. ARTS COLLEGE	OTHER	TOTAL
Ann Arbor														
11	43.1	15.2	54	20	17	9		10	3	56	8	19	3	
12	32.0	8.6	43	10	25	23		2	3	59	7	29	0	
13	33.9	9.0	40	13	37	9		5	2	63	14	13	2	
15	40.5	13.0	32	19	43	6		2	6	74	5	11	1	
Boston														
21	35.5	9.3	70	0	19	11		0	9	46	21	24	0	
22	26.7	7.7	45	3	48	3		0	3	58	15	30	9	
23	35.9	8.4	80	1	16	3		1	5	48	15	27	4	
26	41.6	16.7	61	22	11	6		0	1	68	10	18	2	
27	24.0	9.2	95	0	0	5		0	5	62	14	19	0	
New York														
41														
42	34.2	11.9	44	21	26	9		0	0	47	18	28	7	
43	41.4	13.6	27	31	33	9		0	4	35	21	37	2	
Florida														
61	38.5	9.1	0	0	100	0		0	0	60	18	20	2	

COPED Area & System Code No.	DESCRIPTION OF ADULT SAMPLE Highest Collegiate Degree (Percentages)						
	None	A.A.	A.B. or B.S.	Masters	Prof. Dipl.	Doctorate	Total
Ann Arbor							
11	15	0.7	36	45	2.3	2	
12	5	3	62	26	3	0	
13	9	1	38	45	4	3	
15	5	2	53	36	3	2	
Boston							
21	2	2	50	38	8	0	
22	0	3	64	33	0	0	
23	3	3	53	41	0	0	
26	1	0	20	74	3	2	
27	5	0	66	24	5	0	
New York							
41							
42	0	0	40	53	7	0	
43	2	1	29	56	9	2	
Florida							
61	2	2	54	54	3	0	

A NEW TECHNIQUE FOR DISCOVERING CAUSAL INFLUENCES EXERTED BY TWO VARIABLES ON EACH OTHER

by
H. I. Weisberg

Description of the Problem

Suppose we have two variables A and B. We assume that at any given time an individual may be measured to have high (+) or low (-) values on each of the variables. If the individual is measured to have a high value on each, we say that he has variable state (+ +). If he is high on A but low on B, he has variable state (+ -). States (- +) and (- -) are similarly defined. Let us call the four possibilities listed above variable states 1, 2, 3, and 4 respectively.

Our experimental program will be to measure the variable states of a number of individuals at some initial time and some later time. It is hoped that the results of such an experiment will shed light on the way A and B influence each other.

For a concrete example, we use the 1940 presidential campaign data of Lazarsfeld (2), who is responsible for the experimental program described above. In this example, A represents party allegiance and B personal liking for Willkie. A + value for A meant that the individual favored the Republican party, a - value that he favored the Democratic party. A + value for B meant that the individual liked Willkie, a - value that he disliked Willkie. Measurements were made at two different times during the 1940 presidential campaign on a set of 266 individuals. We wish to know how these two attitudes influenced one another. Did an allegiance to the Republican party influence a voter to like Willkie? Did a personal liking for Willkie influence a voter toward a Republican allegiance? To study this kind of question Lazarsfeld introduced the so-called 16-fold table technique.

The technique derives its name from the fact that the result of an experiment like the one described can be conveniently displayed in a table of the form:

Figure 1.

Final State

			+ +	+ -	- +	- -
	(1)	+ +	n_{11}	n_{12}	n_{13}	n_{14}
Initial State	(2)	+ -	n_{21}	n_{22}	n_{23}	n_{24}
	(3)	- +	n_{31}	n_{32}	n_{33}	n_{34}
	(4)	- -	n_{41}	n_{42}	n_{43}	n_{44}

Here n_{ij} is the number of individuals with initial state i and final state j $(i = 1, 2, 3, 4; j = 1, 2, 3, 4)$. For example, n_{23} is the number of individuals with initial state (+ -) and final state (- +). The actual table resulting from Lazarsfeld's data is shown in Table 1.

Table 1.

Concurrent Change in Vote Intention and Personal Liking for Willkie

Second Interview

First Interview		+ +	+ -	- +	- -	Total
	+ +	129	3	1	2	135
	+ -	11	23	0	1	35
	- +	1	0	12	11	24
	- -	1	1	2	68	72
						266

Lazarsfeld uses the data from such a table to form an index of the relative strength of the two variables in influencing each other. We hope to use the data to resolve more precisely the pattern of mutual influence operating between A and B. Our methods are intended to suggest causal connections which seem plausible on the basis of the data, not in any sense to prove them. In any real situation there will be alternative explanations. In particular, there is always the possibility of unobserved variables being responsible for what we observe. This is an unavoidable difficulty inherent in any attempt to study causation.

Description of the Method

First let us spell out certain possible ways in which A and B may influence one another. Suppose that if A in initially and finally +, this increases the probability that if B is initially +, it will remain +. More precisely, in terms of conditional probabilities, suppose:

$$\begin{aligned} &P(\text{B finally} + \mid \text{A always} + \text{and B initially} +). > \\ &P(\text{B finally} + \mid \text{A always} - \text{and B initially} +). \end{aligned}$$

We will say in this situation that A seems to influence B in the direction of keeping B + if it is already +, or that $A \to B$ in the $+ \to +$ direction. Note that we have defined the direction of influence in terms of which change becomes more probable when A stays at a higher level. We could equally well have defined it in terms of which becomes more probable when A is lower. Our choice is arbitrary but natural.

There are 8 possible influences of the type described above. They are displayed in Figure 2 below:

Figure 2.

	+ → +	+ → -	- → +	- → -
A→B	1	2	3	4
B→A	5	6	7	8

Thus, for example, the type of influence described in detail above will be called type 1. Note that we actually have 4 pairs of complementary types of influence (1, 2), (3, 4), (5, 6), (7, 8). For example, type 2 corresponds to the inequality:

$$P(B \text{ finally } - \mid A \text{ always } + \text{ and } B \text{ initially } +) > P(B \text{ finally } - \mid A \text{ always } - \text{ and } B \text{ initially } +).$$

Since

$$P(B \text{ initially } - \mid \text{some condition}) = 1 - P(B \text{ initially } + \mid \text{some condition})$$

this inequality is the reverse of the corresponding to type 1 influence. Thus we have at most 4 types of influence operating at one time, one from each pair.

In order to discover influences of these types it seems natural to look at "transition" tables of the type shown in Figure 3.

Figure 3.

		Final State	
		+	-
Initial State	+	n_{++}	n_{+-}
	-	n_{-+}	n_{--}

For a given variable under specified conditions on the state of the other variable, n_{++} will be the number of individuals initially + who change to -, and so on.

Now consider the two transition tables for B conditional on A being always + and A being always -. These can be obtained from Figure 1, and the results are displayed in Figure 4.

Figure 4.

A Initially and Finally +

		B Final	
		+	-
B Initial	+	n_{11}	n_{12}
	-	n_{21}	n_{22}

A Initially and Finally -

		B Final	
		+	-
B Initial	+	n_{33}	n_{34}
	-	n_{43}	n_{44}

The first thing to note from such tables is the proportion of individuals with B initially + who have final values + for B. If this proportion is higher in the table corresponding to A+ than in that corresponding to A-, we have evidence in favor of type 1 influence. If it is lower, this is evidence in favor of type 2.

Mathematically we have that if

$$\frac{n_{11}}{n_{11} + n_{12}} > \frac{n_{33}}{n_{33} + n_{34}} \tag{1}$$

we have evidence in favor of type 1, while if the inequality is reversed, we have evidence in favor of type 2. Similarly if

$$\frac{n_{21}}{n_{21} + n_{22}} > \frac{n_{43}}{n_{43} + n_{44}} \tag{2}$$

we have evidence in favor of type 3 influence, while if the inequality is reversed, we have evidence in favor of type 4.

Now suppose we consider the transition tables for A conditional on B being always + and always -. These are displayed in Figure 5.

Figure 5.

B Initially and Finally +

	A Final +	A Final -
A Initial +	n_{11}	n_{13}
A Initial -	n_{31}	n_{33}

B Initially and Finally -

	A Final +	A Final -
A Initial +	n_{22}	n_{24}
A Initial -	n_{42}	n_{44}

By the same reasoning as above, we have that if

$$\frac{n_{12}}{n_{11} + n_{13}} \qquad \frac{n_{22}}{n_{22} + n_{24}} \tag{3}$$

we have evidence in favor of type 5 influence, while if the inequality if reversed we have evidence in favor of type 6. Finally if

$$\frac{n_{31}}{n_{31} + n_{33}} \qquad \frac{n_{42}}{n_{42} + n_{44}} \tag{4}$$

we have evidence in favor of type 7, while if the inequality is reversed we have evidence in favor of type 8. We also note that if an inequality is close to equality, we can interpret this as evidence against the corresponding pair of influence types.

Thus far, we have described a method of determining types of influence suggested by the data. It is clearly desirable to have some measure of the strength of the suggested relationships and test of their significance. Toward this end, consider the tables displayed in Figure 6.

Figure 6.

B Initially +

(1) A Initial and Final

	B Final +	B Final -
+	n_{11}	n_{12}
-	n_{33}	n_{34}

(Figure 6 Continued)

B Initially -

B Final

(2) A Initial and Final

	+	-
+	n_{21}	n_{22}
-	n_{43}	n_{44}

A Initially +

A Final

(3) B Initial and Final

	+	-
+	n_{11}	n_{13}
-	n_{22}	n_{24}

A Initially -

A Final

(4) B Initial and Final

	+	-
+	n_{31}	n_{33}
-	n_{42}	n_{44}

Table (1) is formed from the first row of the transition table for A always + and the first row of the table for A -. Table (2) is formed from the second rows of these tables. Table (3) is formed from the first row of the transition table for B always + and the first row of the table for B -, table (4) from the second rows of these tables.

Note that table (i) corresponds to inequality (i) (i=1, 2, 3, 4) in the sense that there will be a larger interaction in table (i) the stronger the inequality (i). This interaction will be positive if inequality (i) holds and negative if (i) is reversed. Thus positive interaction in table (i) is evidence in favor of type (i) influence, while negative interaction in table (i) is evidence in favor of type (i+1) influence.

Tables (1) through (4) are four 2 x 2 tables of the form shown in Figure 7.

Figure 7.

One Variable

Final

		+	-
Other Variable Initial and Final	+	a	b
	-	c	d

The interaction in each table is the interaction between the final state of one variable and constant state of the other, holding the initial value of the former fixed. There are several correlation-like quantities which can be used to measure interaction in such a table. For example, we could use the Pearsonian correlation coefficient

$$\rho = \frac{ad - bc}{\sqrt{(a+b)\ (c+d)\ (a+c)\ (b+d)}}.$$

By computing ρ for each of the tables in Figure 6, we obtain a measure of the strength of the apparent causal relationships suggested by the corresponding inequalities.

To test the significance of an interaction in a single 2 x 2 table we can use the ordinary X^2 test with continuity correction. That is we calculate the statistic

$$X^2 = \frac{N\left(|ad - bc| - \frac{N}{2}\right)^2}{(a+b)\ (a+c)\ (c+d)\ (b+d)}$$

where $N = a + b + c + d$. Under the null hypothesis of no interaction, this statistic has approximately a X^2 distribution with 1 degree of freedom.

It is also possible to test for interaction in the 2 x 2 tables presented in Figures 4 and 5. Strong interactions in these tables are evidence that the initial state of a variable affects the final state. Since in most situations we would expect all such interactions to be highly significant, the results of these tests will probably not be very revealing.

On the other hand, suppose we compare the correlation for the tables in Figure 4 with those for the first two tables in Figure 6. The first pair of correlations measure the extent to which the initial value of B seems to influence the final value when the value of A remains constant. The second pair measure the apparent influence of a constant A on the final value of B. Comparing the magnitudes of these correlations gives information about which influence appears to be stronger in determining the final value of B. Similarly we can compare the correlations for the tables of Figure 5 with those of the last 2 tables in Figure 6.

Analysis of Lazarsfeld Data

For illustrative purposes, we now apply our methods to the Lazarsfeld 1940 campaign data. The first step is to form the tables in Figures 4 and 5 from table 1. We obtain the following 4 tables.

Figure 8.

		B Final +	B Final -	Proportion going to +	ρ
B Initial	+	129	3	.98	.72
	-	11	23	.32	

A Initially and Finally -

		B Final +	B Final -		
B Initial	+	13	11	.54	.58
	-	3	69	.04	

B Initially and Finally +

	A Final +	A Final -		
A Initial	129	1	.99	.86
	1	12	.08	

B Initially and Finally -

	A Final		Proportion going to +	ρ
	+	-		
A Initial	34	1	.96	.94
	2	70	.02	

The proportion going to + in each row has been recorded to the right of each row along with the value of the Pearsonian correlation coefficient. Comparing the appropriate proportions we see that there is evidence in favor of type 1 and type 3 influence and perhaps a little evidence in favor of types 5 and 7.

The next step is to form the tables in Figure 6. Next to each table we have listed the values of ρ and X^2 and noted whether this X^2 is significant at various levels.

Figure 9.

B Initially +

			B Final		ρ	X^2	Sign. Level		
			+	-			.05	.01	.001
(1)	A Initial and Final	+	129	3	.56	44.1	✓	✓	✓
		-	12	11					

B Initially -

			B Final		ρ	X^2	Sign. Level		
			+	-			.05	.01	.001
(2)	A Initial and Final	+	11	23	.42	15.6	✓	✓	✓
		-	2	68					

(Figure 9 Continued)

A Initially +

		A Final +	A Final -	ρ	X^2	Sign. Level .05	.01	.001
(3) B Initial and Final	+	129	1	.11	.14			
	-	23	1					

A Initially -

		A Final +	A Final -	ρ	X^2	Sign. Level .05	.01	.001
(4) B Initial and Final	+	1	12	.15	.13			
	-	1	68					

We clearly have evidence in favor of type 1 and type 3 influence. It seems that Republican allegiance influenced voters to continue to like Willkie if they already did so and to develop a liking for him if they did not already do so. Based on the correlation, it seems that the former influence may have been somewhat stronger. We also conclude that there is little evidence that personal liking for Willkie influenced party allegiance in any way.

Note finally that the correlations for the first two tables of Figure 8 are .72 and .58, while those for the first two tables of Figure 9 are .56 and .42. These results suggest that party allegiance was of slightly less importance than original attitude towards Willkie in determining final attitude towards Willkie. On the other hand, the correlations for the last two tables of Figure 8 are .86 and .94, while those for the last two tables of Figure 9 are .11 and .15. These suggest that initial party allegiance was much more important than personal liking for Willkie in determining final party allegiance.

Final Comments

The basic step in the method described above is the assessment of the interaction between the constant value of one variable and the final value of the other, holding the initial value of the latter fixed. Thus, we are imitating the conditions of a controlled experiment, where certain variables are held fixed and others allowed to vary at the discretion of the experimenter.

Note that certain combinations of indicated influences make our inferences more plausible than others. For example, types 1 and 3 together will generally be more plausible than 1 and 4 together. In the first case, A influences B to be more like A (congruent change (4)), while in the second type 1 influence is towards congruence, but type 4 influence is towards incongruence.

Finally, we note that one advantage of the present method is the relative simplicity of the experimental scheme. Indeed, the primary purpose of this paper has been to show how with only dichotomous measurements at two points in time, it is possible to extract a considerable amount of information on possible causal influences among two variables.

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A PRELIMINARY REPORT ON THE SPRING SURVEY*

Purposes of this Report

This report contains tabulations on some key variables for each of the eight school systems in our sample. It may give members of the change agent teams a general idea of the position of their systems relative to others on these variables, and they may find the data of some possible diagnostic importance. A second purpose of the report is to stimulate from the teams requests for further tabulations. If a team desires, it may obtain tabulations for its system on almost any of the questions or combination of questions asked last spring together with comparable results for the total sample. This is subject to a few limitations: only teams, not individuals, may request tabulations; the confidentiality of the information must be preserved; complex statistical tabulations cannot be performed quickly; and any tabulations will require a week or two before delivery. Thus, we will not give tabulations revealing the identity of the questionnaire respondent, and we will not normally give tabulations revealing the identity of a person whose activities are described or evaluated by other respondents. It may be desirable for each team to appoint one or two persons to act as liaison persons with the research people at the R & D Center; we are prepared to give such persons special instructions in the tabulations and interpretation of data.

Contents

The first section will contain some tabulations for high school students, the second for elementary students. These will center on student behavior (and misbehavior) and how students see their teachers. We have rich data on student leadership and friendship patterns and patterns of high school "culture" that are not reported here. The third section will report some tabulations from questionnaires for teachers and other adults regarding influence in the system, general feelings of satisfaction, and responses to school principals. Data on perceived goals for schools, perceptions of norms about communication and collaboration, evaluation of meetings, responses to innovations, and many other topics, will not be reported here.

Limitations of the Data

One always questions survey data with regard to the reliability and validity of the indicators used (the questions asked) and the representative nature of the sample. We have a further limitation of preserving anonymity.

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*This is included in these studies as one example of how the COPED data were fedback to participating school systems. Unfortunately not enough data were fedback due to the discontinuation of funds for continued action. Wisconsin was able to continue because of their different sources of funds.

Do responses to our questions mean what they seem to mean on the face of it? Would respondents have answered in the same way if the questions had been asked one week later? We are confident that our data are generally valid (the first question) and reliable (the second). These are technical problems that cannot be discussed here at length, although they are not entirely technical: you may be able to help us in our research by suggesting how respondents might fail to interpret questions as we do or why they might be motivated to deceive us. Some of the most persuasive bases for confidence in our data comes from patterns of association among different items; they make sense. Research reports showing this will be circulated among you as they are prepared.

We have only samples of students and adults in each system. How representative are these samples? Our total sample is large, and we are confident that we can generalize from it to the total population in the eight school systems studied. We have about 1318 high school students, 1571 elementary students, and 629 adults. But when we wish to describe a particular system, our sample is often much smaller. For the large systems in our sample (e.g., when we have 281 high school students or 164 adults) we can generalize with confidence to the larger system. But for the smaller systems, with only 48 high school students or 20 adults, we must be more skeptical. This is especially so when we wish to consider classrooms as units of analysis. Thus, even in some of the larger systems we have fewer than 10 high school classes. That may be a large fraction of all high school classes, but caution is necessary in interpreting results. If change agent teams so desire, it may be possible to collect more questionnaires (much shorter than in the spring) from larger samples in their systems or in some particular schools.

Small samples make it difficult to preserve anonymity. This is hard enough anyway; in the data to be reported here, some of you will be able to identify superintendents whose influence is being rated. Normally, we will not present such data. E.g., in one system we have very few elementary school classrooms, and the student responses to questions about their relations with their teacher are distinctively different from responses for the larger sample of the 5th graders. We cannot report such data (although we might, under certain conditions, prepare a special report for the teacher concerned). But this again is a limitation of these statistics.

High School Student Data

We asked high school students how often they had been sent out of a class by a teacher they didn't get along with and how often they had skipped school with a gang of kids. These are examples of questions that may not be meaningful for individual students, who may often give false answers, but are quite useful in comparing groups (if errors are of the same magnitude for different groups). The questions formed the basis for an interesting study by Arthur S. Stinchcombe.* Data on being sent out are shown in Table 1, while data on skipping are shown in Table 2. Stinchcombe suggests that being sent out more than once and skipping more than once are good indicators of high school rebellion. Local conditions and school policies may affect rates and make comparisons difficult; for example, a principal may strongly discourage teachers from sending disruptive students to his (or the dean's) office. Thus, the questions are more meaningful when considered along with other indicators of misbehavior.

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*Arthur S. Stinchcombe, Rebellion in a High School (Chicago: Quadrangle Press, 196)

Generally, social class (as indicated by father's occupation) has little or no association with misbehavior. But in some of our schools middle class students tend to misbehave more, while in others working class students tend to misbehave more. The best predictor of skipping and being sent out is college aspirations; those who expect to go to college skip and misbehave less. Stinchcombe suggests that this occurs because, for students not going on to college, their school experiences tend to force upon them the identity of a failure. But, again, the effect is bigger in some schools than others.

Table 4 includes data about the behavior of high school classes. (This means that the effective size of the sample is very small for some school systems.) The overall results show, and it should be no surprise that students misbehave when the teacher leaves the classroom. However, there are large differences among the eight school systems in the perceived extent of such misbehavior.

The differences noted in Tables 1, 2, and 4 and in the tables to follow, may not be system differences. That is, the percentages may differ because of different rates of college attendance among students, something the system may have little effect upon, because of differences in class size, because of difference in sex of teacher, and so forth. In the future, we hope to refine these data to take such factors into account. The refined data may be more useful for your diagnostic purposes.

Earlier studies and the analyses we have made already suggest that one of the best predictors of student satisfaction with a teacher and their misbehavior in the teacher's classroom is the degree to which they perceive the teacher as grading fairly. The differences among our eight systems in this regard are shown in Table 5 and the differences are large indeed. The percentage of students saying their teacher grades fairly only some of the time or hardly ever ranges from 33 per cent for system number 6 to only 6 percent for system number 2.

Some of the same data reported above are also available for elementary school students. However, here we shall give a slightly different sample of results from their questionnaires.

Primary Student Data

Most teachers encourage children to come to them for help when the child needs it and, as Table 6 shows, most children perceive that the

Table 1. HAVE YOU EVER BEEN SENT OUT OF THE CLASS TO THE OFFICE BY A TEACHER YOU DIDN'T GET ALONG (WITH)? BY SCHOOL SYSTEM (CODE NUMBERS). Form C-9, Question 5.

	SCHOOL SYSTEM								
	1.	2.	3.	4.	5.	6.	7.	8.	Total
1. Yes, More Than Once	17%	8%	15%	10%	6%	15%	9%	13%	12%
2. Yes, Once	13	9	8	10	12	14	8	16	12
3. No	70	82	77	80	83	71	83	71	76
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
(Number of Students)	(277)	(129)	(48)	(244)	(121)	(129)	(134)	(226)	(1307)

Percentages may not total exactly 100 because of rounding.

Table 2. HAVE YOU EVER SKIPPED SCHOOL WITH A GANG OF KIDS (WHETHER OR NOT YOU GOT CAUGHT)? BY SCHOOL SYSTEM. Form C-9, Question 6.

	SCHOOL SYSTEM								
	1.	2.	3.	4.	5.	6.	7.	8.	Total
1. Yes, More Than Once	15%	24%	13%	25%	8%	17%	9%	15%	17%
2. Yes, Once	9	19	6	11	7	14	6	12	11
3. No	75	57	81	64	84	69	85	73	73
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
(Number of Students)	(280)	(129)	(48)	(244)	(121)	(128)	(132)	(226)	(1308)

Number of students may vary from table to table because those not answering have been excluded.

Table 3. CORRELATIONS BETWEEN FATHER'S OCCUPATIONAL STATUS, UNIVERSITY ASPIRATIONS, AND BEING SENT OUT OF CLASS. BY SCHOOL SYSTEM.

	SCHOOL SYSTEM								
Gamma for ----	1.	2.	3.	4.	5.	6.	7.	8.	Total
a. SES by being sent out	-.20	-.11	-.04	+.09	+.11	+.22	+.26	-.13	-.00
b. University aspirations and being sent out	-.22	-.29	-.37	+.02	-.20	-.28	-.15	-.21	-.20

Gamma is a measure of association for two variables that ranges from +1.00 (if one variable is high, the other always is) to zero (no association) to -1.00 (if one variable is high, the other always is low). E.g., the higher the figure in the first row, the more likely it is that children from families where the father is a white collar worker are sent out than children from families where the father is a manual worker.

Table 4. (I THINK THAT) THE STUDENTS IN THIS CLASS BEHAVE THEMSELVES EVEN WHEN THE TEACHER LEAVES THE ROOM. BY SCHOOL SYSTEM. Form C-6, Question 3.

	SCHOOL SYSTEM							
	1.	2.	3.	4.	5.	6.	7.	8.
1. Always	5%	4%	10%	6%	9%	4%	4%	2%
2. Almost Always	18	20	25	35	35	14	20	8
3. Often	21	24	33	27	19	19	15	18
4. Only Sometimes	31	43	27	23	26	35	32	34
5. Never or Almost Never	25	8	4	9	11	28	29	38
Total	100%	100%	100%	100%	100%	100%	100%	100%
(Number of Students)	(281)	(129)	(48)	(248)	(121)	(131)	(134)	(226)

Table 5. (I THINK THAT) MY TEACHER GRADES FAIRLY. BY SCHOOL SYSTEM. Form C-7, Question 10.

	SCHOOL SYSTEM							
	1.	2.	3.	4.	5.	6.	7.	8.
1. Always	25%	36%	33%	42%	36%	15%	46%	23%
2. Almost Always	30	38	46	31	26	26	32	28
3. Most of the Time	19	20	16	17	23	24	16	23
4. Some of the Time	18	5	8	6	12	24	4	17
5. Hardly Ever	10	1	0	3	2	9	3	8
Total	100%	100%	100%	100%	100%	100%	100%	100%
(Number of Students)	(278)	(129)	(48)	(248)	(121)	(131)	(134)	(226)

Table 6. (THE TEACHER FEELS) THAT ASKING THE TEACHER FOR HELP IS A GOOD THING TO DO. BY SCHOOL SYSTEM. Form C-3, Question 2. (PRIMARY GRADES)

	SCHOOL SYSTEM						
	1.	2.	4.	5.	6.	7.	8.
1. I would agree very much	44%	67%	56%	38%	57%	51%	56%
2. I would agree some	28	24	25	27	25	25	22
3. I would be in between	16	8	10	15	11	12	12
4. I would disagree some	9	1	6	17	6	8	7
5. I would disagree very much	3	1	2	2	1	4	3
Total	100%	100%	100%	100%	100%	100%	100%
(Number of Students)	(292)	(156)	(351)	(138)	(178)	(114)	(283)

Table 7. (MY TEACHER SHOULD) ASK US TO DECIDE WHAT THE CLASS WILL DO. BY SCHOOL SYSTEM. Form C-4, Question 1. (PRIMARY GRADES).

	SCHOOL SYSTEM						
	1.	2.	4.	5.	6.	7.	8.
1. Much more than he does not	21%	18%	17%	13%	21%	25%	29%
2. A little more than he does now	45	32	35	41	38	28	23
3. The same as he does now	40	38	38	36	32	36	36
4. 5. A little less than he does now	12	11	10	11	9	11	11
Total	100%	100%	100%	100%	100%	100%	100%
(Number of Students)	(292)	(157)	(351)	(138)	(178)	(114)	(283)

teacher regards help-seeking favorably. However, there is a fairly wide variation among school systems in the percentage of children who would "agree very much" that the teacher likes children to ask for help or is willing to help the child. Percentages range from a low of 38 to a high of 67. If the data were broken down by classrooms, they might reveal some in which students are distrustful and fearful of the teacher and unwilling to ask her for help.

One problem that constantly confronts teachers is how to give children the freedom they want and need to develop while at the same time giving them the direction and discipline necessary if they are to learn. Teachers may vary from the highly authoritarian to the very permissive. A very simple indicator of this is the question directed to primary students concerning how much they want their teacher to "ask us to decide what the class will do"--more than now, the same as now, or less than now. (Our statistical analysis shows that responses to this question is a good predictor of responses to other questions about satisfaction with the teacher and teacher authoritarianism. Students who want their teacher to ask them to decide much more than he does not are more likely to report certain kinds of misbehavior in the classroom.) While many children indicated that they were satisfied with their opportunities to help decide what to do, still a large proportion (at least 50 per cent in each school system) said that they would like to be asked more often what the class should do. The difference among the eight school systems are relatively small, however.

Teacher Data

Most of us are subjectively aware of something like the "morale" or "esprit" of the groups in which we work and most of us would recognize that it has important consequences for the group and its members--consequences ranging from effects on the quit rate to the degree of help-giving among staff members. It is not easy to translate these subjective feelings into useful measurements, but we asked many questions of school system adults that are relevant to morale. Here we present the distributions of responses to two such items. The first is also the simplest--a general measure of satisfaction, the frequence of feeling that "I don't feel satisfied with a lot of things that go on in this school." The distributions shown in Table 8 reveal a low degree of teacher dissatisfaction although there is considerable variation among school systems; the percentage not satisfied "often," "almost always," or "always" ranges from 24 to 48. The other morale question we will note here concerns involvement in school activities. (We selected this particular question because a change agent team expressed concern about lack of teacher involvement at one of their meetings in the spring.) The figures in Table 9 show a wide range of responses from teachers in each system. The differences among systems are not too large (the percentage feeling involved always or almost always ranges from 54 to 30) and because of small sizes in some systems, the results must be interpreted with caution.

Table 8. TEACHERS' RESPONSES TO "HOW OFTEN DOES THIS HAPPEN?--I REALLY DON'T FEEL SATISFIED WITH A LOT OF THINGS THAT GO ON IN THIS SCHOOL." Form A-3, Question 14.

	SCHOOL SYSTEM							
How often does this happen?	1.	2.	3.	4.	5.	6.	7.	8.
Always or almost always	7%	2%	0%	2%	11%	2%	5%	4%
Often	27	29	24	23	37	26	35	22
Only sometimes	48	57	35	46	37	41	45	47
Almost never	19	12	41	29	15	31	15	27
Total	100%	100%	100%	100%	100%	100%	100%	100%
(Number of Teachers)	(124)	(42)	(17)	(109)	(27)	(54)	(20)	(77)

Table 9. TEACHERS' RESPONSES TO "HOW OFTEN DOES THIS HAPPEN?--I FEEL INVOLVED IN A LOT OF ACTIVITIES THAT GO ON IN THIS SCHOOL." Form A-3, Question 12.

	SCHOOL SYSTEM							
How often does this happen?	1.	2.	3.	4.	5.	6.	7.	8.
Always	8%	19%	6%	14%	19%	17%	30%	14%
Almost always	30	21	24	30	30	28	20	31
Often	38	38	53	40	37	41	30	32
Only sometimes	21	17	18	14	15	11	20	18
Almost never	2	5	0	2	0	4	0	4
Total	100%	100%	100%	100%	100%	100%	100%	100%
(Number of Teachers)	(123)	(42)	(17)	(110)	(27)	(54)	(20)	(77)

A recent book by Neal Gross of Harvard University* contains pursuasive evidence that the "executive professional leadership" of elementary school principals has major effects on the behavior of teachers in their schools and indirectly on the performance of pupils. We asked the adults in our sample some of Gross' questions (Forms A-7, A-8 and A-9). While the index formed by adding responses to all questions together is most useful for measuring the professional leadership of a principal, responses to single items are easier to understand. The data in Tables 10 and 11 come from the teachers' questionnaires and are a kind of average rating of all principals in each system. It will be more meaningful to treat responses about each principal separately, and later we may find ways of revealing this information while protecting the individuals concerned.

"How often does your principal take a strong interest in your professional development?" The data in Table 10 show that most teachers give their principals high ratings on this question, but the variation among school systems is large--in one system 33 per cent of the teachers say their principal almost never takes such a strong interest, while in another (represented by only 16 teachers) only 6 per cent take such a negative view. "How often does your principal run conferences and meetings in a disorganized fashion?" Again, while teachers generally report little dissatisfaction in this regard, the differences among school systems are large; the proportion responding "frequently" or more often ranges from zero to 47.

Findings such as these have some diagnostic significance; they may help suggest some distinctive problems for different systems. While the data themselves suggest no ways of dealing with the problems, it is possible that other tabulations may be useful in planning changes. (E.g., what types of teachers are most likely to least likely to report various types of satisfaction or dissatisfaction? Are single female teachers significantly less involved in school activities than others? Are new teachers more likely to express dissatisfaction with some type of principal behavior than experienced teachers?) One of our jobs is to provide you with such statistics and help you gather additional information.

The final set of data to be presented here, in Table 12, concerns teachers' perceptions of the influence different groups or persons actually have in determining educational matters in their schools. These data may be useful for understanding the organizational structure in each system, but they do not reveal "problems" in the same way as most of the data shown above; it isn't obvious that any particular distribution of influence is markedly superior to another for a particular system. (Besides, the teachers may be wrong in the evaluation.) We do have datas on this topic that may reveal social tensions, however, since we also asked adults in each system how much influence various groups or persons

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*Neal Gross, Staff Leadership in Public Schools (New York: Wiley, 1965)

Table 10. RESPONSES BY TEACHERS (ELEMENTARY AND SECONDARY) IN EACH SYSTEM TO: "MY PRINCIPAL: TAKES A STRONG INTEREST IN MY PROFESSIONAL DEVELOPMENT." Form A-7, Question 3.

	SCHOOL SYSTEM							
To what extent does your principal take a strong interest in your professional development?	1.	2.	3.	4.	5.	6.	7.	8.
Always or almost always	49%	44%	81%	53%	30%	46%	25%	63%
Frequently	21	13	6	12	15	22	12	15
Occasionally	15	28	6	25	22	20	31	13
Never or almost never	16	15	6	10	33	12	31	8
Total	100%	100%	100%	100%	100%	100%	100%	100%
(Number of Teachers)	(121)	(39)	(16)	(105)	(27)	(50)	(16)	(71)

Table 11. RESPONSES BY TEACHERS IN EACH SYSTEM TO: "MY PRINCIPAL: RUNS CONFERENCES AND MEETINGS IN A DISORGANIZED FASHION." Form A-7, Question 14.

	SCHOOL SYSTEM							
To what extent does your principal run conferences and meetings in a disorganized fashion?	1.	2.	3.	4.	5.	6.	7.	8.
Always or almost always	3%	0%	6%	3%	11%	5%	18%	3%
Frequently	9	0	12	2	14	9	29	3
Occasionally	18	14	0	8	18	13	18	16
Almost never	43	45	12	34	29	33	12	37
Never	27	40	71	54	29	40	24	42
Total	100%	100%	100%	100%	100%	100%	100%	100%
(Number of Teachers)	(122)	(42)	(17)	(110)	(28)	(55)	(17)	(76)

ought to have in determining educational matters; the discrepancy between responses to these questions and those shown in Table 12 may be interesting and we may find it possible to discuss them with you in the near future.

The figures shown in Table 12 require a little study to appreciate whatever significance they might have. The response categories for the questions were "none, a little, some, considerable, or a great deal." These are grouped together differently for different roles in the system--e.g., we report the percentage saying the superintendent has "a great deal" of influence, since almost all respondents agree that he has at least some influence, but we report the percentage saying students have "some, considerable, or a great deal of influence," since very few respondents say that students have a great deal of it. The differences among systems are large. Some conclusions they suggest are (1) newly appointed officials are perceived to have relatively less influence than older officials, (2) the influence of curriculum and guidance personnel may vary considerably, (3) individuals in small systems feel they have greater influence than individuals in large systems. Thus the history and social characteristics of the system affect patterns of influence in it; these data should not be taken personally.

Table 12. INFLUENCE PROFILE FROM TEACHER'S PERCEPTIONS

Form A-10, Question 1	1	2	3	4	5	6	7	8
a. School Board - % A Great Deal (%5)	33%	60%	29%	17%	33%	38%	15%	32%
b. Superintendent - % A Great Deal (%5)	71%	14%	14%	49%	41%	68%	50%	59%
c. Principal of your school % Considerable or A Great Deal (%4 + 5)	13%	15%	43%	15%	22%	13%	5%	28%
d. Yourself-% Some, Considerable or A Great Deal (%3+5+4)	40%	36%	64%	35%	52%	40%	58%	38%
e. A small group of teachers -% Considerable or A Great Deal (% 4 + 5)	5%	10%	29%	7%	30%	25%	15%	10%
f. Teachers in general-% Considerable or A Great Deal (%4+5)	26%	26%	36%	29%	30%	41%	30%	31%
g. Curriculum Personnel-% Considerable or A Great Deal (%4+5)	66%	67%	*	87%	11%	58%	*	64%
h. Students-% Some, Considerable, or A Great Deal (%3+4+5)	29%	19%	29%	23%	15%	36%	35%	39%
i. Parents-% Some, Considerable, or A Great Deal (%3+4+5)	69%	62%	36%	32%	48%	60%	55%	48%
j. Guidance Personnel-% Considerable, or A Great Deal (%4+5)	28%	31%	7%	23%	4%	45%	20%	10%
(Smallest number of teachers)	(117)	(41)	(14)	(94)	(27)	(52)	(20)	(76)

*Number of cases too small for percentage

CHARACTERISTICS OF ORDERLY AND DISORDERLY HIGH SCHOOL CLASSES

by

Warren O. Hagstrom and Hugh Gardner

INTRODUCTION

A major basis, or even the most important basis, for the evaluation of a teacher in most U. S. school systems is his ability to maintain order in the classroom. It also seems likely that his ability to maintain order is a major determinant of a teacher's satisfaction with his work. Thus, inability to maintain order may be responsible for a large proportion of involuntary and voluntary terminations of teacher appointments. Yet schools of education devote a relatively small proportion of their instructional effort to problems of discipline and order, and such problems are not a major focus of attention in educational research. There are several reasons for this relative neglect. The maintenance of order is not especially highly valued in our society, or at least order is not among the most commonly stated public values. Order is not the goal of school systems, but only a means toward the end of learning, it is not entirely clear that a high degree of order is a necessary condition for learning. Indeed, progress in education has ordinarily been accompanied by less stress on order and discipline.

An additional reason for neglecting problems of classroom order in teacher education is that so little is known about it. Maintaining order is, even more than other aspects of teaching, an art rather than a science. Teacher educators and school administrators may feel that a teacher's ability to maintain order depends mostly on his personality; this may very well be true, although there is little or no systematic research to justify it. If personality is critically important, then there is little sense in systematically training teachers to maintain order. Instead emphasis will be placed upon the selection of teachers, ordinarily after they have demonstrated their ability or lack of it in the classroom.

In this report we shall critically discuss one method for measuring and explaining variation in classroom order. We shall show that most of the variation can be explained by simple indicators of the composition of the student group, the teacher, and the relation of the teacher to the students. While we shall have nothing to say about how a teacher's personality affects his ability to maintain order, or how his relations with his superiors can affect this ability, we shall be able to specify profitable lines for future research.

In the next three sections we shall deal with the effects of three types of variables on classroom order: student background characteristics, student morale, and teacher characteristics. Our summary will recapitulate the advantages and limitations of the approach and consider future lines of inquiry.

I. METHODS AND MEASUREMENTS

The Sample

Our unit of analysis is the eleventh grade English classroom. The sample includes 56 such classrooms from ten high schools in eight Wisconsin communities. We obtained questionnaires from 1318 students in these classrooms, partial questionnaires from 53 teachers, and complete questionnaires from 34 teachers in these same classes, all in March, 1967. The sample is not random.[1] It is taken only from relatively small communities not selected in any random fashion. The largest city in the sample had a population of about 46,000 in 1960, there is one other city of 35,000 with a substantial industrial base, while the other communities are smaller. None of the communities is a suburb, although a small fraction of the residents in three of them are employed in Milwaukee or Madison. Because of the relatively small size of these communities, none of the schools involved is as homogeneous in terms of student social class origins as the high schools found in big cities. On the other hand, the schools are homogeneous in terms of race; not a single self-reported Negro student or teacher is in the sample.

Given this nonrandom selection, generalization of our results to larger populations, especially in big cities, requires considerable caution. Obviously it is also difficult to generalize to different age groups and to classes in subjects other than English. Problems of maintaining order differ according to the subject taught, just as teachers in different subjects differ in important respects. Reliability of measurement is discussed in the instrument description section of this volume.

II. RESULTS: COMPOSITION OF CLASS AND DISORDER

In this section we shall show how the composition of a class affects the degree to which it is orderly. As our dependent variables we shall consider the degree to which students perceive that "students behave themselves even when the teacher leaves the room" (here after called "behave") and that "Students follow the teacher's directions." (Here after called "follow".) These two indicators are highly correlated with the classroom order factor and they have high face validity. We experimented with indices composed of the sum of a number of items highly loaded on the disorder factor but found they did not produce significantly higher correlations while concealing some of the differences among different indicators.

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[1] We shall nevertheless report statistical tests of significance in this report. Some rule of thumb for deciding whether or not a correlation of a given magnitude could have been produced just by sampling variation is necessary, and the test of significance provides such a rule of thumb. In an earlier report based upon these same data (Hagstrom and Gardner, 1969) we presented data almost exclusively in the form of percentaged tables. Tests of significance are not so appropriate there, where the reader can evaluate the "significance" of results by examining the size of the percentage base; this option is not available in multivariate correlation analyses.

We know some of the characteristics of individual students who tend to be disorderly in school settings and hostile to teachers and other adult authorities, and here we shall show to what extent classes composed of a high proportion of such students are more disorderly than classes with lower proportions of them. Thus, common knowledge and previous research suggest that boys are more apt than girls to be hostile to teachers and disruptive in classrooms (Stinchcombe, 1964; Hagstrom and Gardner, 1969), and the proportion of a class male is highly correlated with its orderliness. The studies just cited also show that a student's academic aspirations are a very good predictor of his propensities to be disruptive. When these academic aspirations are held constant, student social class has but low (or even positive) correlations with disorderly behavior, but we shall nevertheless examine the effects of the average status in the class on disorderliness. The indicators mentioned are predictors of individual disruptiveness, but we also have some measures of the extent to which students have been disorderly in the past and shall consider the extent to which the presence of such students in a class contributes to its disorderliness. Finally, it is reasonable to propose that the problem of maintaining order becomes harder to solve as classes become larger.

The zero-order product moment correlations between these independent variables and six dependent variables are shown in Table 1. All the signs of the correlations are in the expected direction with the disorder indicators, and there are only two slight reversals (between SES and C6Q11 and C7Q1) with the like teacher indicators, but many of the correlations are not significantly different from zero. The correlations between proportion male and proportion sent out of class for disciplinary reasons and the disorder indicators are fairly large. The correlations between the dependent variables and proportion planning to go to college are about the same as their correlations with the proportion of students from white collar families; this might be expected, since these two independent variables are themselves highly correlated (0.70).

The relative importance of these independent variables changes when their effects on classroom order are considered simultaneously in a series of multivariate linear regression equations. We computed regression equations between various combinations of the independent variables and our two major indicators of classroom order; a summary of the results is given in Table 2 in the form of the proportion of the variance in each dependent variable explained by the various combinations of independent variables. The proportion of the class who are boys accounts for 23 per cent and 29 per cent of the variance in the "Behave" and "Follow" dependent variables, respectively, and no collection of the other variables adds much to this. When we combine proportion male, number of students in class, and the proportion planning to go to college we can explain, respectively, 31 per cent and 39 per cent of the variance in the two dependent variables. Clearly classroom composition accounts for much of the variation in classroom orderliness, and any attempt to explain this behavior in terms of other classroom and teacher characteristics must take composition into account.

Table 1. COMPOSITION OF CLASS AND STUDENT BEHAVIOR: SELECTED ZERO-ORDER CORRELATIONS FOR 56 HIGH SCHOOL CLASSES

Zero-order product-moment correlations

Dependent Variables	% Male	Class Size	% Univ. #	SES ##	% Sent ###
Disorder indicators:					
C6Q3 Students behave themselves even when the teacher leaves the room.	-.48	-.14	.26	.25	-.36
C6Q5 Students laugh when someone misbehaves.	.38	.11	-.09	-.05	.29
C6Q8 Students follow the teacher's directions.	-.54	-.09	.38	.24	-.47
Like teacher indicators:					
C6Q11 Students like the teacher.	-.19	-.08	.02	-.09	-.26
C7Q1 Life in the class with your regular teacher has. . . all good things.	-.27	-.02	.13	-.01	-.29
C4Q9 % satisfied with degree to which teacher "trusts us".	-.34	.04	.42	.33	-.49
Mean of independent variable.	50.5%	25.4	49.0%	30.8%	12.5%
Standard Deviation	16.0	4.6	26.6	16.3	10.5

# % of class who definitely or probably intend to go on to college.

## % of class whose fathers have white collar jobs.

### % of class who have been sent from class more than once for disciplinary reasons while in school

In this and succeeding tables, correlation coefficients significantly different from zero are underscored.

Means and Standard Deviations of Dependent Variables

Variable	Mean for 56 classes	Standard Deviation
C6Q3* Students behave themselves. . .	3.42	0.60
C6Q5* Students laugh when . . . misbehaves	2.80	0.63
C6Q8* Students follow the teacher's . . .	2.59	0.44
C6Q11* Students like the teacher . . .	2.85	0.78
C7Q1** Life in this class. . .	3.11	0.53
C4Q9 % satisfied with. . . "trust us"	52%	21

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* Mean for each class computed from individual student ratings of frequency, with 1, always; 2, almost always; 3, often; 4, only sometimes; and 5, never or almost never. Signs of correlations are always reversed so that high values imply high frequencies on the item indicated.

**Mean for each class computed on the basis of individual student ratings of 1, has all good things; 2, has mostly good things; 3, has more good things than bad; 4, has about as many good things as bad; 5, has more bad things than good; and 6, has mostly bad things. Signs of correlations are always reversed so that high values mean high positive evaluations.

Table 2. COEFFICIENTS OF DETERMINATION (R^2) FOR SELECTED COMBINATIONS OF CLASS COMPOSITION INDICATORS AND "BEHAVE" AND "FOLLOW" DEPENDENT VARIABLES, FOR 56 HIGH SCHOOL CLASSES

	Coefficient of Determination, R^2	
Independent Variable(s)	C6Q3 "Behave"	C6Q8 "Follow"
Proportion of class who are boys	.23	.29
Number of students in class	.02	.01
Proportion of class whose fathers have white collar jobs	.06	.06
Proportion of class who definitely or probably intend to go to college	.07	.10
Proportion of class who have been sent from class more than once for disciplinary reasons while in school	.09	.12
% male and % going on to college	.23	.31
% male and number of students	.30	.35
% male, number of students, and % going on to college	.31	.39
% male, number of students, % going on to college, and % sent out more than once	.32	.42

Let us now consider the effects of each of these variables in greater detail. Data in Table 5 show that adding class size to proportion male makes it possible to explain an additional seven per cent of the variance in the "Behave" variable. Model 1 in Table 3 shows that the effect of class size is statistically significant from zero when considered simultaneously with proportion male, although the proportion planning to go to college does not add significantly to the proportion of variance explained. Considering only these three independent variables, we can conclude that an increase of one standard deviation in the proportion male reduces a class score on the "Behave" variable by .494 standard deviations; this is the meaning of the standardized partial regression coefficient or beta weight. (Although it is difficult to state this in words that do not imply causation, clearly correlation does not directly imply causation, and this must be kept in mind throughout this report.) Similarly, an increase of one percentage point in the proportion male reduces the score on the "Behave" variable while an increase of class size by one student reduces the score by .040 units. .019 units, we agree with Cain and Watts (1968) that a well developed theory might better be expressed in unstandardized regression coefficients. However, our dependent variables do not yet have any significance outside of the set of correlations we are presenting; we cannot, for example, say anything about the utility of a reduction in the "Behave" score by .040 units for student learning, student motivations, or teacher morale. If we could do so it would be useful to use the unstandardized coefficients to provide answers to questions such as the beneficial effects that might be produced by a given reduction in class size; e.g., what is the ratio of the benefits of such a reduction to the costs it would involve? Since we are in no position to answer such questions, and since we wish to compare the importance of the effects of various independent variables on a variety of dependent variables, we shall use standardized regression equations in most of the remainder of this report. In using standardized regression coefficients we treat all variables as having means of zero and standard deviations of one, and differences in scale units or the dispersion of measures on different scales are excluded from consideration.

Although proportion planning to go to college does not add significantly to the variance explained in Table 2 and 3, we shall continue to include it in our tables because college plans does account for a large proportion of the variance in individual disruptiveness and because the variable does become significant in some of the tables we shall show below. Having included proportion planning to go to college, the proportion from white collar families adds essentially nothing to the variance explained in disorder. The partial correlation (controlling for class size, proportion male, and proportion going to college) between this SES indicator and the "Follow" dependent variable is +.021, and its partial correlation with the "Behave" variable is -.135; the partial correlations of proportion planning to go to college is -.207 for the "Follow" variable and -.023 with the "Behave" variable. Although SES and college plans are largely interchangeable, the latter is a slightly superior predictor.

Table 3. REGRESSION EQUATIONS FOR SELECTED INDEPENDENT VARIABLES AND "BEHAVE" AND "FOLLOW" DEPENDENT VARIABLES, FOR 56 HIGH SCHOOL CLASSES

	Dependent Variable			
	C6Q3, Behave		C6Q8, Follow	
Independent variables	Regression Coefficient	Standardized Regression Coefficient, Beta	Regression Coefficient	Standardized Regression Coefficient, Beta
Model 1				
% of class who are boys	-.019*	-.494*	-.014*	-.500*
number of students	-.040*	-.303*	-.029*	-.304*
% planning to go to college	.003	.130	.004	.254
Coefficient of determination	.309		.395	
Model 2				
% of class who are boys	-.017*	-.443*	-.011*	-.407*
number of students	-.038*	-.294*	-.027*	-.288*
% planning to go to college	.002	.105	.003	.210
% sent from class more than once for disciplinary reasons	0.006	-.113	-.008	-.205
Coefficient of determination	.318		.423	

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*Significantly different from zero at the 5 per cent level of significance, 2-tailed t-test.

Students with Disruptive Histories and Classroom Disorder

Teachers, our front line troops in the battle against classroom disorder, often diagnose the problem in personal rather than a collective fashion. They perceive particular students flouting their directions and disrupting their classes rather than disruptive classes as social groups. They naturally tend to conclude that their problems would be reduced a great deal if only they could eliminate disruptive individuals from their classes. A recent National Education Association poll (NEA, 1969) asked a probability sample of U. S. teachers, "Should teachers have the right to suspend unruly students from their classes (not from school) without the approval of the principal?" An affirmative response to this question was given by 54 per cent of elementary school teachers and 71 per cent of secondary school teachers; among the latter, more than 41 per cent felt that teachers should be permitted to suspend such students for periods of one week or longer.

Our data cast doubt on the utility of such procedures, at least if used in moderation. We asked students if they had, at any time in their school careers, been sent out of class by a teacher for disciplinary reasons. Among boys, 39 per cent had been sent out at least once and 22 per cent more than once, while 10 per cent of the girls had been sent out at least once. In our earlier report (Hagstrom and Gardner, 1969), we discussed the characteristics of individual students who were sent out more or less frequently; the results show that this is a good indicator of propensities to be disruptive. Table 1 shows that the correlations between the proportion of the class sent out more than once for disciplinary reasons and the "Behave" and "Follow" variables are -.36 and -.47, respectively. However, the data in Table 3 show that proportion sent out more than once adds only an insignificant 1 per cent and 3 per cent to the amount of variance explained in these dependent variables by background variables. That is, when such simple background variables as the proportion male and size of class are controlled, the proportion of the class with disruptive histories does not significantly help explain variation in the degree to which classes are disorderly.

We believe this can be interpreted as showing that excluding one or a few disruptive students would not necessarily make a classroom more orderly; other rebels would emerge to play the roles of those excluded. However, other interpretations of the data are possible and cannot now be rejected. Possibly the sanction of exclusion is effective in maintaining order, and teachers or schools who make frequent use of this sanction have more orderly classrooms as well as higher rates of being sent out of class among their students. (Perhaps order is maintained in this way at the cost of reduced student morale.) Our interpretation of these results is consistent with the results of an old study reported by Anderson and his colleagues (1946).[1] They observed teachers and students in an elementary school for two consecutive years and noted that the undesirable classroom behavior of students in the first year did not continue in the second year when they had a different teacher; The Teacher's undesirable personality patterns did persist, however, with their new groups of students.

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[1] We wish to thank L. Paul Fotsch for drawing this reference to our attention.

Homogeneity in Composition and Disorder

Advocates of "streaming," "ability grouping," or "homogeneous classrooms" have suggested that there will be not only a linear effect of ability on classroom order (as well as classroom learning) but that the within class variation will also have an effect. Torrance and Arsan (1961), for example, report an experiment showing "less disruptive social stress" in elementary school classrooms when students were grouped by IQ than when groups were heterogeneous in IQ. Critics of ability grouping have argued the reverse. Hargreaves (1967), in a study of English boys' secondary schools, for example, argues that streaming is a major cause of student alienation; his evidence is less rigorous but perhaps more persuasive than that of Torrance and Arsan. Age level and type of community may determine the effects of ability grouping on student disruptiveness.

While we did not compute average IQ for the classrooms in our sample, the proportion attending college may serve as a proxy; in secondary schools grouping is often determined by academic plans as well as ability. We computed, for each class, the product between the proportion with college plans and the proportion not planning on college; this is the variance of the proportion planning to go to college, and it can also be interpreted as including a squared term for this variable in regression equations. This variance measure had a zero-order correlation of -.16 with the "Behave" variable and -.28 with the "Follow" variable. That is, in this sample greater homogeneity in terms of college plans is associated with more orderly classrooms. However, the effect of this variance term, or the curvilinear effect of class size, is much smaller than the effect of proportion with college plans, and it adds essentially nothing to the amount of variance explained by college plans. With a larger sample, the technique used here may make it possible to provide more definitive evidence about the effects of class homogeneity on disorder.

Class Size and Disorder

The data in Table 5 show that class size significantly increases the proportion of variance explained in the "Behave" and "Follow" variables. This finding is not readily interpreted, for an increase in class size may increase rates of disorder simply by increasing the probability that one or more disorderly students will be included in the class. I.e., if just one student always misbehaves when the teacher leaves the room, student raters may say that such misbehavior often occurs in their class, and the probability that such a student is present increases in a linear fashion with class size. Other variables, such as ratings on the degree to which the class likes the teacher, do not seem to share this characteristic to the same extent. The partial correlation between this "like teacher" measure and class size, controlling for proportions male and planning to go to college, is -.12. The same partial correlation for ratings of the degree to which the class works well together is -.37, and for ratings of the degree to which students do the same work at the same time is -.19.

These correlations do tend to be smaller than those with indicators that are more likely to be influenced by the probability of finding one or two disruptive students, such as the "Behave" variable, where the partial is -.32, the "Follow" variable, where the partial is -.34, and the ratings of the degree to which students laugh when someone misbehaves, where the partial is +.21. As a result, we cannot be sure that the effect of class size stems from the dynamics of interaction in the classroom rather than simply the increased liklihood of including disruptive students. That the former effect is more important is suggested by the already noted fact that the proportion of the class with disruptive histories does not significantly affect disorder when other variables are controlled.

Evaluating the effects of class size is further complicated by the fact that its relationship with classroom order is significantly curvilinear. The following regression equation (with unstandardized regression coefficients) shows this clearly:

C6Q3 Misbehavior rating = 5.06 + .0194 (% male) - .2800 (N) + .0068 (N^2), where N refers to the number of students in the class, N^2 to the square of this number, all regression coefficients are significantly different from zero, and the coefficient of determination equals .3732. Differentiating this equation by N gives a derivative equal to -.2800 + .0136 (N). Thus when N is small, misbehavior tends to decline as N increases, while when N is large, misbehavior tends to increase as N increases. Setting this derivative equal to zero shows that misbehavior is at a minimum, for this sample, when the number of students equals 20.6; misbehavior increases with smaller and with larger classes. (When the same procedure is used with the "Follow" variable it is found that ratings on this reach a maximum when class size equals 16.2). Given the small and nonrandom sample used in this study, these results are mostly of methodological interest; they illustrate a procedure that might be used with larger and more representative samples. It is not easy to account for the curvilinearity. Perhaps school administrators sometimes assign students known to be unruly to smaller classes, or perhaps they give smaller classes to teachers known to be less competent in controlling students. Perhaps more disruptive behavior is tolerated in smaller classes. These possibilities illustrate the hazards of attempting to infer causal relationships from survey data. Definitive evidence on the effects of class size will require controlled experimentation.

Considering the importance attached to class size by teachers and the ease with which administrators may control this variable, relatively little research has been done to ascertain its effects. A National Education Association survey (cited in Husen, 1967) revealed that teachers with classes of from 20 to 24 students were far more likely to report that they had no troublesome pupils (47 per cent so reporting) than teachers with classes of from 40 to 44 students (only 30 per cent reporting no troublesome pupils). However, even if these data, and those reported here, are valid and can be generalized to the larger school pupulation, there is no good evidence that student learning is enhanced by smaller classes. A study in Sweden by Marklund (cited in Husen, 1967, pp. 19f.) showed no such effects, and some studies with college students actually suggest that student performance is better in large rather than in small classes (see the studies reviewed by McKeachie, 1963). Studies of class size will become more valuable and more feasible as an increasing number at schools adopt such innovations as flexible scheduling and the use of groups of widely different sizes for different instructional purposes.

The results reported in this section show that much of the variation in the orderliness of classrooms can be accounted for by simple measures of the composition of the class. It is difficult to infer causation from many of the results reported, such as those dealing with class size and the proportion of students with disruptive histories, but the techniques used here should be valuable in future studies with larger samples and additional measurements. Next we shall consider classroom morale as a dependent variable in much the same way, and then we shall show how teacher characteristics affect classroom order and morale.

III. RESULTS: CLASSROOM MORALE

Student learning and student conduct are strongly affected by relations within peer groups. Students learn directly from one another, and students become motivated by comparing the performances of themselves and their peers. The norms established in a classroom are norms of the student group, not only of the adult authorities in the school; students reward and penalize one another for conformity to and deviance from these norms, and these sanctions are probably more important than the sanctions given by teachers. It is a standing challenge to teachers to lead student groups in such a way as to foster high morale among them. Much has been written about the ways in which this might be accomplished, but it must be admitted that this advice tends to be based on little empirical evidence, nor is there much systematic evidence about the effectiveness of various procedures.

In this section we shall present some correlates of student morale, showing how it is affected by classroom composition and how it may affect classroom order. In the following section we shall show how some teacher characteristics are related to classroom morale. We shall use mostly two simple indicators of morale: mean classroom ratings in the degree to which "Students like each other" and the degree to which "Students work well together." The zero-order product-moment correlations between these two measures, three other possible indicators of morale, and several possible independent and dependent variables, are shown in Table 4. The "work well together" measure is more highly correlated with indicators of classroom order than the "like each other" measure; the former measure, including as it does the significant word "work," is more likely to indicate classroom solidarity facilitating adherence to official school goals than the latter measure. Both of these measures are significantly correlated,

Table 4. ZERO-ORDER CORRELATIONS OF SELECTED VARIABLES WITH INDICATORS OF MORALE FOR 56 HIGH SCHOOL CLASSES

	Morale Indicator				
Dependent or Independent Variable	Students like each other	Work well together	Skipping	Mean number outside choices	R, best student leader
C6Q3 Students behave themselves even when teacher absent	.15	.50	-.15	-.20	.32
C6Q5 Students laugh when someone misbehaves	.05	-.32	-.01	.16	-.44
C6Q8 Students follow the teacher's directions	.24	.69	-.30	-.37	.21
C6Q7 Students like each other	----	.62	-.54	-.41	.21
C6Q9 Students work well with one another	.62	----	-.44	-.31	.01
Number of students in class	-.07	-.09	-.04	.33	.07
Proportion of class male	-.26	-.49	.26	.18	-.13
Proportion who definitely or probably intend to go to college	.36	.48	-.45	-.27	-.02
Proportion whose fathers have white collar jobs	.26	.38	-.34	-.23	-.04
Variance of proportion who plan to go to college	-.14	-.20	.05	.43	.30

Means and standard deviations of morale indicators

Variable	Mean	Standard Deviation for 56 classes
C6Q7 Students like each other.	2.41*	0.30
C6Q9 Students work well with one another.	2.50*	0.35
Proportion who have skipped more than once while in school.	.169	.106
Mean number of friends outside of class like better than any classmate.	5.78	1.41
Correlation between number of choices received as leader and as best student.	.504	.315

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*Mean for each class computed from individual student ratings of frequency, with 1, always; 2, almost always; 3, often; 4, only sometimes; and 5, never or almost never. Signs of correlations are always reversed so that high values imply high frequencies on these two items.

in the expected direction, with the rate of skipping among students in the classroom and with the mean number of friends outside the class liked better than members of the class. Neither is correlated significantly with the within class correlation between number of choices received as "best student" and the number of choices received as "leader." Classes with high morale are not disproportionately led by their best students. This suggests that high morale may contribute to deviance from official school norms as well as conformity to them, a possibility we shall investigate below. Size of class has been low correlations with the morale indicators, the proportion male is negatively related to morale, and SES and the proportion with college plans are both positively correlated with morale.

Classroom Composition and Morale

The data in Table 5 show that the "work well together" measurements tend to decline with increasing class size and increasing proportion boys and that these measurements tend to increase as the proportion of students who plan to go to college increases. All three standardized partial regression coefficients are significantly different from zero, and together they account for 42 per cent of the variance in the dependent variable. Only 19 per cent of the variance in the "students like each other" measure is accounted for by these three variables, and only the partial effect of proportion going on to college is significant, but the signs of the partial correlations are in the same direction as with the "students work well together" measurements.

It is reasonable to expect that morale will tend to be low in large classes, where personal interaction among students, is more difficult and it is also reasonable to expect morale to be lower as the proportion of boys increases, since boys compete more aggressively for leadership and place a lower value on harmonious social interaction than girls. It is not so easy to understand the large positive effect of college plans on morale. (Almost all of the effects of SES on morale can be accounted for by the effects of SES on college plans; with college plans held constant, the partial correlation between SES and the morale indicators is +.01 and +.07.) If the results had been in the opposite direction they could have been interpreted in terms of higher competitiveness among those with higher academic aspirations. If there is any such effect it is not important. Those with high academic aspirations gain more rewards from school, and the rewards they gain from interaction with classmates like the rewards they gain from teachers, are more significant for them than for those without high academic aspirations.

Morale and Classroom Order

Much of the variance in our indicators of classroom order can be accounted for by morale, but the results are paradoxical. The data in Table 6 show that adding morale indicators to classroom composition indicators increases the proportion of the variance explained in the

Table 5. REGRESSION EQUATIONS FOR SELECTED INDEPENDENT VARIABLES AND MORALE INDICATORS FOR 56 HIGH SCHOOL CLASSES

	Dependent Variable, Standardized Regression Coefficient (Beta)	
Independent Variables	C6Q7, Students like each other	C6Q9, Students work well with one another
% of class who are boys	-.158	-.381*
Number of students in class	-.228	-.325*
% planning to go to college	.361*	.418*
Coefficient of determination, R^2	.19	.42

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*Significantly different from zero at the 5 per cent level of significance, 2-tailed t-test.

The standardized regression coefficients are roughly equal (with + or - .05) to the partial correlation of the independent variable and the dependent variable with the other two variables controlled.

Table 6. REGRESSION EQUATIONS TO SHOW ADDED VARIATION EXPLAINED IN "BEHAVE" AND "FOLLOW" DEPENDENT VARIABLES BY MORALE INDICATORS, FOR 56 HIGH SCHOOL CLASSES

	Dependent Variables, Standardized Regression Coefficients (Betas)	
Independent Variables	C6Q3, Behave	C6Q8, Follow
Model 1, without morale indicators		
% of class who are boys	-.494*	-.500*
Number of students in class	-.303*	-.304*
% planning to go to college	.130	.254
Coefficient of determination, R^2	.31	.40
Model 2, with morale indicators		
% of class who are boys	-.370*	-.285*
Number of students in class	-.219	-.147
% planning to go to college	.038	.073
Mean, like each other	-.239	-.293*
Mean, work well together	.426*	.688*
Coefficient of determination, R^2	.39	.60

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*Significantly different from zero at the 5 per cent level of significance, 2-tailed t-test.

"Follow" indicator form 40 to 60 per cent and in the "Behave" indicator from 31 to 39 per cent. However, the direction of the effects of the two morale indicators are in opposite directions. With the other variables controlled, as the ratings on "work well together" improve, the ratings on classroom order markedly improve. But, holding the other variables constant, as ratings on "like each other" improve, there is a tendency for ratings on classroom order to decline. The major effect is for order to increase as morale increases.

The negative effect of the "like each other" measure on classroom order when the other morale indicator is held constant may be a statistical artifact. However, it is well known that the cohesiveness of work groups has double-edged significance for their conformity to official production standards. Seashore's studies of industrial work groups (1954) showed that cohesive groups were important in maintaining group standards, but may set either high or low standards of productivity. Since strongly cohesive groups feel less threatened by management than do less cohesive groups, it may be more difficult to change their standards. Thus, we might expect highly cohesive classroom groups to exhibit more variation in conformity to official school norms than less cohesive groups; while a highly cohesive class may generate conformity to goals of order and learning, it may also establish low performance standards and maintain them against the pressures of the teacher.

While the paradoxical regression coefficients shown in Table 6 might suggest such an effect, further analysis of our data offer no support for the hypothesis that cohesiveness produces greater variance in conformity to official school norms. We created a measure of dispersion for our classroom order variables by computing the difference between the value for a class and the mean value for all 56 classes and squaring the difference. Thus, if a class is average on the "Follow" measure it would receive a score of zero on the squared deviation measure, while if it were either high or low it would receive a high positive score on this (These computed deviations are essentially independent of the "Behave" and "Follow" measures.) computed measure. If cohesiveness increases dispersion in conformity to official school norms, then our morale indicators should be positively related to these squared deviation measures. The data in Table 10 shows that there is no significant relationship between the morale indicators and the squared deviation measures; three of the four partial regression coefficients have negative signs, the reverse of what would be expected if the hypothesis stated above were true.

In this section we have shown that classrooms composed of college bound students tend to have higher morale and that classrooms with high moral tend to be more orderly. In the next section we shall discuss the influence of teacher characteristics on morale and classroom order.

Table 7. REGRESSION EQUATIONS TO SHOW THAT THE EFFECT OF HIGH MORALE IS NOT TO INCREASE DISPERSION FROM AVERAGE VALUES OF DISORDER INDICATORS, FOR 56 HIGH SCHOOL CLASSES

	Dependent Variables, Standardized Regression Coefficients (Betas)	
Model 3	C6Q3, Squared Deviations from the mean for all classes, Behave	C6Q8, Squared Deviations from the mean for all classes, Follow
% of class who are boys	-.220	-.284
Number of students in class	-.170	-.150
% planning to go to college	.050	.189
Mean, like each other	-.089	-.313
Mean, work well together	-.034	.385
Coefficient of determination, R^2	.10	.15

None of the betas are significantly greater than zero.

IV. RESULTS: TEACHER CHARACTERISTICS, MORALE, AND DISORDER

We have two types of information about teachers for 53 of the 56 classes in our sample: student perceptions of their teacher's behavior and attitudes, and certain background characteristics from a questionnaire completed by teachers. In addition, for 34 classes, we have teacher's ratings of the attitudes and behavior of the students. Earlier analysis suggests that perceptions of fairness are an important determinant of satisfaction with teacher in general, and we shall elaborate upon this point in the present section.

In Table 8, we present zero-order product-moment correlations between three background characteristics of teachers, two of the ratings of teachers by students, and a variety of other characteristics of the 53 classes. None of the correlations involving teacher sex or teacher age are significantly different from zero. Some of those involving teacher sex approach significance; classes with women teachers tend to be perceived as less orderly, and students tend to be less satisfied with women teachers. We shall speculate about this below. For our sample, teacher age accounts for little variance in classroom behavior, and it can be neglected in further analysis. Similarly, the social class origins of teachers generally have very small correlations (not reported here) with classroom characteristics, and it too will be neglected in our more detailed analyses. If our sample were larger, we would probably be able to discover some significant effects of teacher age and social class of origin. Ziegler (1967), for example, shows that the social mobility of teachers (from class of origin) has significant effects on various political and educational attitudes and that class of origin interacts with teacher sex and significant ways. Willower et al (1967) show that older teachers tend to have more "custodial" and authoritarian attitudes than younger teachers.

Teacher's education, as indicated by highest degree earned, has a correlation significantly different from zero only with student interest in the class. We shall discuss this result below in detail.

The two indicators of student perception of teachers that are reported in Table 8 tend to have high correlations with classroom order and student morale. Let us now examine some of these relationships in a multivariate framework.

Teacher Sex and Fairness and Classroom Order

Women teachers tend to have more disorderly classes. Comparing regression models 1 and 2 in Table 9 shows that the addition of teacher sex to three class composition variables makes it possible to explain an additional nine per cent of the variance in the "Behave" variable and that the effect of teacher sex is significantly different from zero. The partial effect of teacher sex is not significant with the "Follow" variable, and addition of sex adds only one per cent to the variance explained in this variable, but the effect is in the same direction.

Table 8. TEACHER CHARACTERISTICS AND STUDENT BEHAVIOR: SELECTED ZERO-ORDER CORRELATIONS FOR 53 HIGH SCHOOL CLASSES

Zero-order product-moment correlations

		Teacher Characteristic Indicators			
Classroom Characteristics	Teacher Female	Teacher Age	Teacher Education	Grades Fairly	Satisfaction, "Trust us"
Disorder indicators:					
C6Q3 Students behave...even when teacher leaves	-.26	-.10	.15	.37	.60
C6Q8 Students follow the teacher's directions.	-.16	-.12	.08	.51	.65
Morale indicators:					
C6Q7 Students like each other.	.01	-.06	.06	.05	.16
C6Q9 Students work well with one another.	-.16	-.02	.21	.32	.47
Other Characteristics:					
C7Q3 % pretty or very interested when in class.	-.19	.10	.42	.51	.40
C6Q1 Students all take part in discussions.	-.07	-.03	.01	.26	.07
C7Q2 Students work hard at school.	-.14	.15	.25	.16	.27
C7Q1 Life in this class with your regular teacher...good.	-.21	-.03	.22	.74	.61
C6Q11 Students like the teacher (in this class).	-.18	-.12	.17	.76	

Table 8. Continued

Mean of column variable	47%	37.8*	3.32**	2.31***	52% #
Standard deviation	50	12.4*	.46**	.60	21

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*Age was indicated by a check in one of nine 5-year intervals; the reported mean in interpolated and the standard deviation reported is the computed figure times five.

**Education was indicated by response categories with 2 = 2 years of college (almost no respondents checked this), 3 = A.B. or B.S., 4 = Masters, 5 = professional diploma, and 6 = doctorate. Almost all responses were 3 or 4.

***Mean response to question, "My teacher grades fairly...1, always; 2, almost always; 3, most of the time; 4, some of the time; 5, hardly ever. Signs of correlations are reversed so that high numbers indicate high perceived fairness.

# Percentage in class responding, "The same as he does now," to the question, "I wish my teacher would do this: Trust us on our own," more often, less often, or the same as now.

Our data suggest that the reason why women teachers have more disorderly classes is that they are perceived to grade less fairly; the biserial correlation coefficient between teacher female and the class rating on fairness of grading is .26. Regression model 3 in Table 9 shows that perceptions of fairness in grading explains significantly more variance in both dependent variables. It, together with the three class composition variables, makes possible the explanation of 43 per cent of the variance in the "Behave" variable and 58 per cent of the variance in the "Follow" variable. Comparison of regression models 2, 3, and 4 shows that the effect of teacher sex is insignificant when teacher fairness in grading is taken into consideration.

An earlier ethnographic study by Werthman (1963) suggests the process that produces these statistics. Werthman observed members of violent gangs in school settings. He noted that gang members tended to be poor students and disorderly students; most had been suspended from school at one time or another, and almost none planned on continuing education beyond high school. But Werthman also noted that the boys he observed were not unruly in all their classes. In attempting to find out why, he discovered that these boys were greatly interested in the grading practices of teachers and were motivated to get good grades. This in itself is surprising, in view of earlier speculations about the relations between student social class and misbehavior; these alleged that students from lower class origins placed no value on "middle class" values of academic success as manifested in school grades. Werthman found that gang boys compared their grades with those of other students at the end of each grading period, if necessary coercing middle class students into showing their report cards. On the basis of their knowledge of one another's talents and performance in the class, these boys would assess the fairness of teacher grading practices. Sometimes they diagnosed low grades as retaliation for misbehavior, high grades as bribes for good conduct, and sometimes (especially in classes such as physical education) they perceived grades to be given out almost randomly, with no regard for skill or conduct. Whenever they perceived grades given for any of these reasons, they defined the grading practices as illegitimate; that is, they shared the official school point of view that grades ought to be given for performance in the subject matter being taught. Having defined a teacher's grading as unfair, they rejected the illegitimacy of his authority and became unusually disruptive in his classes.

Perceived unfair grading tends to destroy the legitimacy of a teacher's directions. Teachers begin to grade unfairly (in the eyes of at least some students) when they use grades to control nonacademic behavior in classrooms. Teachers are apt to resort to this expedient when they lack other bases of power. These other bases of power include the ability to reward or punish students immediately for conformity or deviation, either by an act in the classroom or by calling on the school administrative staff for assistance. Thus, we would expect teachers to grade unfairly and to have disorderly classes when they lack other kinds of power either for personal reasons or because of their relations to the school administrative staff. The only characteristic of this sort we have measured here is teacher sex. Women teachers tend to lack the personal and physical aggressiveness of men teachers and are thus less powerful in the classroom setting. Hence, their tendency to use grades to control student behavior. Hence, their higher rates of classroom disorder.

Table 9. REGRESSION EQUATIONS TO SHOW ADDED VARIATION EXPLAINED BY TEACHER CHARACTERISTICS IN "BEHAVE" AND "FOLLOW" DEPENDENT VARIABLES, FOR 53 HIGH SCHOOL CLASSES

	Dependent Variables, Standardized Regression Coefficients (Betas)	
Independent Variables	C6Q3, Behave	C6Q8, Follow
Model 1, without teacher characteristics		
% of class who are boys	-.494*	-.500*
Number of students in class	-.303*	-.304*
% planning to go to college	.130	.254
Coefficient of determination, R^2	.31	.40
Model 2, with teacher sex		
% of class who are boys	-.507*	-.498*
Number of students in class	-.270*	-.302*
% planning to go to college	-.167	.256*
Teacher female	-.233*	-.133
Coefficient of determination, R^2	.40	.41
Model 3, with teacher fairness		
% of class who are boys	-.476*	-.445*
Number of students in class	-.246*	-.240*
% planning to go to college	.174	.265*
Teacher grades fairly, mean	.230*	.442*
Coefficient of determination, R^2	.43	.58
Model 4, with teacher fairness and sex		
% of class who are boys	-.476*	-.445*
Number of students in class	-.232	-.238*

Table 9. continued

% planning to go to college	.172	.264*
Teacher grades fairly, mean	.253*	.435*
Teacher female	-.172	-.028
Coefficient of determination, R^2	.46	.58

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*Significantly different from zero at the 5 per cent level of significance, 2-tailed t-test.

Although our data show, as Wertham suggested, that even poorly performing students with low academic aspirations are intensely concerned with the fairness of grading, it is reasonable to suppose that this concern is greater among students with high academic aspirations than among others. To test this hypothesis we divided our 56 classes into one set of 25 classes where at least half the students expected to go to college and another set of 31 classes where less than half expected to go to college, and we computed the effect for each separately. We obtained the following results in support of the hypothesis just stated; these are regression equations with the variables stated in their negative and unstandardized form. For classes with at least half planning on college:

C6Q8, Not Follow Directions = 1.22 + .478x (Teacher grades unfairly). r = .63. For classes with less than half planning on college:

C6Q8, Not Follow Directions = 2.12 + .264x (Teacher grades unfairly). r = .41. The correlation for classes tending to have high academic aspirations, .63, is markedly higher than that for classes tending to have low academic aspirations, .41. The regression coefficient for the former group is almost twice as high as for the latter. (The intercepts of 1.22 and 2.12 show that classes with low aspirations tend to be more disorderly even when grading is perfectly fair.)

We have shown that knowledge of some simple teacher characteristics makes it possible to explain much of the variation in student ratings of classroom disorder and that the results are of theoretical interest. In our concluding section we shall note some of the practical implications of these results. Here we shall next compare the effects of various independent variables on student ratings and teacher ratings of classroom order.

Student Ratings and Teacher Ratings of Classroom Order Compared

In section one above, we reported data showing little agreement between student ratings and teacher ratings of classroom characteristics, and we suggested that the former were more likely to be reliable and valid. Still, it remains possible that classroom composition and teacher characteristics have about the same relationships to the two sets of ratings. The data reported in Table 13 show that the signs of the partial associations between teacher and student ratings on the "Follow" variable are the same, with the significant exception of teacher sex, but that the magnitudes are quite different. Whereas classroom composition accounts for 40 per cent of the variance in the student ratings, it accounts for but 18 per cent of the variance in the teacher ratings. This probably stems from the far lower reliability of the teacher ratings.

Regression model 2 in Table 13 shows a standardized partial regression coefficient of -.133 between teacher female and student ratings of "Follow". While students perceive classes taught by men as more orderly, men teachers tend to perceive their classes as less orderly.

Table 10. EFFECTS OF CLASSROOM COMPOSITION AND TEACHER SEX ON REPORTS OF STUDENTS' FOLLOWING THE TEACHERS' DIRECTIONS BY TEACHERS AND BY STUDENTS

	Dependent variables, Standardized Regression Coefficients (Betas)	
Independent Variables	C6Q8, Follow from students	T3Q8, Follow, from teacher
Model 1, Classroom composition only	N = 53	N = 34
% of class who are boys	-.498*	-.430*
Number of students in class	-.324*	-.126
% planning to go to college	.277	.041
% from white collar families	.024	.024
Coefficient of determination, R^2	.40	.18
Model 2, with teacher sex added		
% of class who are boys	-.498*	-.420*
Number of students in class	-.302*	-.246
% planning to go to college	.256*	.038
Teacher female	-.133	.307
Coefficient of determination, R^2	.41	.26
Mean of dependent variable	2.58	2.33
Standard deviation of dependent variable	.44	.58

Men teachers tend to demand more respect from students than women teachers (Zeigler, 1967), to have more "custodial" as opposed to "humanistic" pupil control ideologies (Willower et al, 1967), and to place less emphasis on social relations in the classroom than on subject matter content (as indicated by the Minnesota Teacher Attitude Inventory[1]). Possibly men in an occupation many would consider non-masculine, such as teaching English, are especially demanding of student respect. Men more than women, tend to favor giving teachers the right to use such sanctions as expulsion from the classroom (NEA, 1969) or physical punishment. (A 1965 NEA survey (cited in Zeigler, 1967, p.27) showed that 60 per cent of male high school teachers and 40 per cent of female high school teachers would use physical punishment. In the same survey, 25 per cent of female and 13 per cent of male high school teachers reported that they never have any disciplinary problems.) Thus even if classes are equally orderly, men teachers will tend to perceive them as less orderly than women teachers. Having higher standards for order, and being readier to use punishments, men will have more orderly classes than women; they will be less likely to resort to such indirect sanctions as giving low academic grades for misconduct, and thus will be less likely to compromise the legitimacy of their teaching positions.

This "authoritarian" orientation does not seem to lessen student morale.

Teacher Characteristics and Student Morale

We earlier discussed the effect of class composition on two indicators of morale, student ratings on the extent to which classmates "like each other" and the extent to which they "work well together." We showed that class size, proportion male, and proportion expecting to go to college would together account for 19 per cent of the variance in the former and 42 per cent in the latter.

We expected to be able to explain much more of the variation in these and other indicators of student morale by considering various teacher characteristics. An authoritarian or punitive teacher might be expected to have his students firmly under his control, doing the same work at the same time. These characteristics might stifle open discussion in his classes, giving students less opportunity to learn about one another and like one another. To the extent that such teachers use techniques such as ridicule or "witch hunts" in the classroom (cf. Henry, 1963), students might come to distrust and be hostile not only to the teacher but to one another. Such authoritarian teachers might generate an opposition structure within the classroom: one might expect students to follow the leadership of a few students, probably not the "best" students, in opposing the teacher.

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[1] See the review of data on the MTAI in Getzels and Jackson, 1963, pp. 508-522. For contrary results, based upon a small sample, see Rocchio and Kearney, 1956.

Our data do not bear out these hypotheses. Only perceived fairness of grading explains significantly more variance in morale, and only for the "work well together" indicator (C6Q9); with this added to the three class composition measures 48 per cent of the variance in "work well together" can be explained, 6 percentage points more than the composition variables alone, and the standardized partial regression coefficient of perceived fairness of grading is +.298. Otherwise correlations are low, sometimes in the reverse direction of that expected. Some of these zero-order correlations are shown in Table 11.

Neither teacher age, sex, nor education accounts for a significant amount of variation in our two major morale indicators (or in the others, for which correlations are not shown in Table 14), although there is a tendency for classes with better educated teachers to score higher on the "work well together" measure. Student satisfaction with the degree to which the teacher "asks us to decide what the class will do" might be an indicator of lack of authoritarianism, and this measure is positively correlated with the two morale indicators, but the correlations are very small. However, the extent to which students "do the same work at the same time" is positively correlated with one morale indicator, although negatively correlated with the other. Inequality of choices received as "leader" seems to be positively correlated with morale. (Unfortunately, our indicator of this, the standard deviation in number of choices received as leader, is contaminated by class size, associated in its turn with morale; this measure has a correlation of .54 with class size. In retrospect it would have been better to use some other measure of inequality in number of choices received as leader, such as the maximum number of choices received by any one student, or a measure based upon a Lorenz curve.) Finally, the higher the morale of the classroom, the lower the correlation in it between the number of choices a student received as leader and the number of choices he received as best student, although these correlations are not significantly different from zero.

Thus, these data give little support to the notion that authoritarian teachers generate lower morale in their classrooms. These disappointing results may have been produced by the lack of adequate measures of teacher authoritarianism or punitiveness. In the type of classroom studied here, having students do "the same work at the same time," or asking students "to decide what the class will do," may have no relationship at all to authoritarianism in some broader sense. We failed to ask questions about the teacher's disciplinary practices, about his ways of responding to dissenting points of view, or about his use of techniques for role learning and recitation. It is also possible that a sample including more innovative teachers and schools would show a positive relationship between teacher openness and student morale. Our sample is almost entirely composed of self-contained classrooms in the normal size range; the organizational structure may limit what a teacher can do to facilitate student morale. Possibly the use of flexible scheduling, small group and large group instruction, independent study, and teacher aids would enhance student morale and the ability of teachers to generate morale.

Table 11. TEACHER CHARACTERISTICS AND MORALE: SELECTED ZERO-ORDER PRODUCT-MOMENT CORRELATIONS

	Zero-order product-moment correlations	
Teacher Characteristics or morale indicator	C6Q7, Students like each other	C6Q9, Students work well together
Teacher female	.011	-.166
Teacher age	-.055	-.024
Teacher education	.056	.212
C4Q1, Satisfaction with degree to which teacher "asks us to decide what the class will do"	.037	.173
C4Q6, Satisfaction with degree to which teacher "likes us"	.180	.445
C4Q9, Satisfaction with degree to which teacher "trusts us on our own"	.165	.473
C6Q1, Extent to which students "all take part in classroom discussions"	-.137	.243
C6Q4, Extent to which students "do the same work at the same time"	.202	.386
Standard deviation in number of choices received as "leader"	.301	.264
Correlation in class between number of choices received as leader and as best student	-.233	-.084

Teacher Education and Student Interest

As noted above, teacher education lacks any significant correlation with classroom order or student morale, but it does have a significant correlation of .42 with the proportion of the class stating that they are very much or pretty interested while in the class. This suggests that additional education beyond the four-year degree improves the ability of teachers to organize and present subject matter in a way to interest students[1] but that this additional education is ineffective in producing teachers with superior abilities to maintain order or enhance the social solidarity of classrooms. Either we do not know how to educate teachers to manage social relations in classrooms, or schools of education do not adequately convey this knowledge to their students.

Regression models 1, 2, and 3 in Table 12 show the effects of teacher characteristics on student interest with other variables controlled. Regression model 1 shows that classroom composition accounts for only an insignificant amount, 7 per cent, of the variance in student interest. Adding teacher education increases the proportion explained to 24 per cent, and adding perceptions of teacher fairness in grading increases the proportion explained to 40 per cent, with both teacher education and fairness in grading having significant positive regression coefficients.

Of course, interest is consequential for classroom order. The zero-order correlation coefficient between the interest measure and the "Behave" measure is .46, and its correlation with the "Follow" measure is .56. Regression model 4 in Table 15 shows that interest, together with the class composition measures, accounts for 58 per cent of the variance in the "Follow" measure of classroom order and 27 per cent of the variance in mean ratings on how hard students are working at school.

Since teacher education is associated with student interest, and student interest is associated with classroom order, the fact that teacher education has no significant association with classroom order presents us with something of a paradox. The zero-order correlation between teacher education and the "Follow" measure of classroom order is -.08. The partial correlation between teacher education and "Follow", controlling for student interest, is minus .42: when the effect of student interest is taken out, better educated teachers tend to have less orderly classrooms. It would be quite unwise to attribute any causal significance to this partial correlation. Perhaps, however, teachers with strong interests in subject matter and superior abilities to impart interest in subject matter become unwilling or unable to use disciplinary techniques that other teachers find successful in producing order in classrooms.

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[1] Again, correlation does not imply causation. E.g., perhaps those who for some other reasons have superior abilities to generate student interest are also more likely to pursue advanced degrees.

Table 12. TEACHER AND CLASSROOM CORRELATES OF STUDENT INTEREST, 53 HIGH SCHOOL CLASSES

Independent Variables		Dependent Variables, Standardized Regression Coefficients, Betas
		C7Q3, Interest** % pretty or very interested
Model 1, Class composition only		
% of class who are boys		-.201
Number of students in class		-.233
% planning to go to college		-.013
Coefficient of determination, R^2	.07	
Model 2, with teacher education		
% of class who are boys		-.240
Number of students in class		-.163
% planning to go to college		-.054
Teacher education		.415*
Coefficient of determination, R^2	.24	
Model 3, with teacher education and fairness		
% of class who are boys		-.185
Number of students in class		-0.097
% planning to go to college		-.038
Teacher education		.334*
Teacher grades fairly		.414*
Coefficient determination, R^2	.40	
Model 4, "Consequences" of interest	C6Q8, Follow	C7Q2, work hard in school**
% of class who are boys	-.398*	-.081
Number of students in class	-.299*	-.126

% planning to go to college	.263*		.303*
% pretty or very interested	.446*		.373*
Coefficient of determination, R^2	.58	.27	

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*Significantly different from zero at the 5 per cent level of significance, 2-tailed t-test.

**Per cent of class responding in the first two categories to the question, "When I'm in this class I....1, usually feel wide awake and very interested; 2, pretty interested, bored part of the time; 3, not very interested, bored a lot of the time; 4, don't like it, usually feel bored." The mean for 53 classes is 73.8%, the standard deviation 17.4 percentage points.

***Mean response to question, "How hard are you working these days on learning what is being taught at school? 1, very hard; 2, quite hard; 3, not very hard; 4, not hard at all." The mean for 53 classes is 2.46, the standard deviation, .20.

In this report, we have considered only a small number of teacher characteristics and not necessarily the most important characteristics. In future reports, we hope to be able to show how a teacher's relationships to his principal and his colleagues affects student behavior in his classrooms. We also hope to be able to relate teacher innovativeness with classroom behavior.

V. IMPLICATIONS FOR POLICY AND FURTHER RESEARCH

We have shown in this report that it is possible to obtain valuable information about behavior in classrooms from questionnaires and that multivariate linear regression is a convenient way of testing hypotheses and presenting results. We shall summarize our results by pointing to their policy implications and to their implications for further research.

Order, Morale---and Achievement

It was beyond the scope of this study to determine the effects of classroom characteristics on student learning. Nevertheless, and despite some of our convictions, this report implicitly assumes the desirability of classroom order. It seems obvious that teaching cannot take place unless there is a reasonable amount of order in the classroom - unless students follow the teacher's directions, refrain from disturbing the work of others, and cooperate in the business of asking questions and giving answers. It does not follow that learning will be best accomplished in the most orderly classrooms. Some of the most important forms of learning require that students be spontaneious, challenged to perform, and free to inquire. Perhaps also teachers perform best in settings where students can challenge them. Our most orderly classrooms may be deadly dull places, even if students and teachers "like each other" very much; the order and harmony may result from an accommodation between students and teachers where nobody challenges anybody else and all can put in their time on a safe and secure routine. Freedom, spontaneity, and contest are enemies of order.

Thus, we need to do research on the consequences of order. Such research must discriminate among different types of order, and it will probably require panel studies in classrooms, with measurements taken at least twice in a school year.

Longitudinal studies over a longer period of time would be valuable for studying the relations between the morale of student groups, student aspirations, and order in schools. We know that a student's aspirations are influenced by his peers (Sewell and Shah, 196), but we do not know if the solidarity of student groups tends to generate higher aspirations. If student solidarity has such an effect, it may then indirectly increase order in schools. We have shown that classroom order is associated with student morale and student aspirations; there may be indirect, long term, causal connections between these phenomena as well as direct short run connections.

Class Size

Further research must attempt to determine the costs of student disorder for student learning and teacher satisfaction. When this is done, we shall be in a better position to evaluate remedies, such as reducing class size. Not surprisingly, our results show that larger classes tend to be more disorderly (although the evidence is by no means conclusive).

Ability Grouping

We presented results showing a small (and statistically nonsignificant) relationship between classroom disorder and class homogeneity with respect to college plans. Such an effect does not justify ability grouping, which in any case must be evaluated in terms of its benefits and costs in terms of student learning and motivation.

Excluding Disruptive Students

Our results lend little support to the notion that classes are made disorderly by the presence of students with disorderly histories. If so, the practice of excluding such students, costly in any case, would be a relatively ineffective way of increasing orderliness.

Supporting the Legitimate Authority of the Teacher

Some students will frequently challenge the authority of the teacher, and many students will sometimes do so. A teacher's ability to maintain his authority will be determined by the extent to which he can use, as needed, the various forms of social power to counter challenges to it. Following French and Raven (1960), these forms of social power may be described as shared goals, legitimacy, rewards and punishment. Various characteristics of classes and the teaching situation tend to undermine these bases of power. Boys do not "share" as much as girls the custodial "goals" implied by formal classroom authority, and as the proportion of boys in a class increases the teacher's authority tends to decline. A teacher is not able to "reward" students of low ability or low aspirations with good grades, if the legitimacy of grading is to be maintained, and as the proportion of students not planning to go to college increases, a teacher's authority is more likely to be challenged successfully. Women teachers are less able to punish (physically or otherwise) than men, and thus women tend to be weaker authorities. Finally, if a teacher is perceived to grade unfairly, the legitimacy of his authority tends to vanish.

It is clear from our results that students in the schools studied take grading seriously or do away with it altogether. Any tendency to use grades as punishments for misconduct, bribes for good conduct, or signs of personal affection, are likely to lead to the erosion of teacher authority. Testing and grading have their critics, and such critics might use our results as evidence of the corrosive effects of grading. Possibly the legitimacy of teacher authority is greater in school settings where grading is successfully de-emphasized. We know of no good evidence for this at the secondary school level. In any case, it seems quite unlikely that individual schools or teachers will be able to act independently to reduce the importance of grades. This being so, they must strive to assure that grading be done fairly. This is possibly an area where school psychologists may be of assistance to classroom teachers.

Teachers may tend to grade unfairly when they lack the ability to otherwise reward or punish students who do not share the goals of school authorities. It is quite likely that a teacher's abilities in these regards can be greatly affected by support or lack of support from his principal or other teachers in his school. For example, if a teacher is reprimanded, however mildly, by school administrators or colleagues when he calls on them for assistance in maintaining classroom order, he may tend to fall back on techniques he can use at his own discretion, such as retaliating against unruly students by giving them low grades. On the other hand, the psychological support and sometimes the physical support of principals and colleagues may enable a teacher to develop ways of dealing with disorder that do not tend to undermine his legitimacy.

Research needs to be done on how administrative behavior and colleague relations affect the relations between teachers and students. At present, many administrators may act to maintain order in schools mostly by *selecting* teachers who can do so independently in classrooms. This is a costly procedure; it increases costs by increasing turnover among teachers and perhaps also by producing a body of teachers whose distinctive skills are in disciplining or manipulating students rather than in teaching them.

Order and Morale as Social Interaction Processes

In this report we have treated order and morale as global and, implicitly, as stable characteristics of classrooms. This is a crude oversimplification of what is actually a complex process. In the course of a semester or a year, a differentiated social group may develop and evolve in a classroom. Norms and expectations gradually develop, contingent upon specific actions of teachers and students. Leaders emerge among the students, some of whom may come to play a role that involves challenging the teacher's authority, while other leaders help support the authority of the teacher. Relations among students become structured, and the teacher will normally come to act differently toward different students. (As a result, it is not too surprising that students in a class might have quite different perceptions and evaluations of the teacher and the class.)

A serious understanding of classroom morale and disorder will require longitudinal studies of this evolutionary process. Such studies would probably have to include observation in classrooms, but the administration of questionnaires several times in a school year could also provide valuable information. Such studies are expensive and difficult, with many problems of test or observer reactivity and reliability.

Order, Morale, and Innovation

We must confess to being distressed by an essential triviality of the findings presented here. Not that the findings are statistically trivial - we challenge others to do as well as we have in explaining variance in the characteristics of classroom groups - nor that the findings are irrelevant to teachers and school administrators - information pertaining to grading, class size, or ability grouping, for example, are quite relevant. Rather, our distress is produced by the irrelevance of most of our results to the major structural innovations now being introduced in secondary schools and by their irrelevance to understanding more fundamental aspects of human relations.

The operational definitions we have used for such concepts as order and morale are usually applicable only to self-contained classrooms. Major educational innovations have tended to weaken this structure, and these innovations are now being adopted by many schools. They include team teaching, possibly with the use of teacher aids and lay readers; scheduling classes for longer or shorter time periods and sometimes in large groups, sometimes in small groups; increased use of independent study; and increased use of programmed instruction and related technologies. The study reported here could not be done in a school where these innovations were widely used, and our results cannot be generalized to such settings. Thus, hopefully our findings may become obsolete soon; it is small consolation to know that self-contained classrooms may be the dominant form of instruction for a long time to come.

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ABSTRACT
CONFORMITY, DEVIATION, AND MORALE AMONG EDUCATORS IN SCHOOL SYSTEMS*

by
Daniel M. Callahan**

The purpose of the present study was to examine the relationships between conformity to interpersonal norms and staff morale in school systems. Interest in this topic developed along two lines -- (1) a desire to know more about school systems as organizations and (2) a desire to use a theoretical model of conformity and deviation in a field study.

Until very recently, little attention has been paid to the organizational attributes of schools and school systems. Wayland (1964) pointed out that, at the time he was writing, no thorough going study of the school as an organization could be found in the literature. However, efforts now are being made to fill this knowledge gap. Professor Miles of Teachers College, Columbia University directed the Organization Development in Schools project which documented the effects of organizational change interventions by behavioral scientists in two school systems. (See Benedict, et al, 1967) The Cooperative Project in Educational Development (COPED) is a larger, more comprehensive study of organizational change efforts in about 25 school systems. (See Watson, 1967a and 1967b for some working papers). The latter project is being coordinated through several universities. The present study was carried out through the sponsorship of COPED.

As a social psychologist in the area of education, one of the organizational attributes of school systems of special interest is the interpersonal climate. Any organization, whatever its purpose, can be characterized in terms of the nature of the interpersonal relations of its members. For instance, in one system or sub-system, people may deal with each other openly always trusting others not to be "out to do them in". In such an atmosphere, people are more apt to share ideas, collaborate in their work and to agree upon organization goals. In a system characterized by mistrust and closed-mindedness, people are most apt to work by themselves, jealously guarding their ideas and pursuing goals which may be quite idiosyncratic. In this case, the organization goals held by system members may be similar but, because of no intercommunication, extensive duplication of effort and generally poor problem-solving procedures would be the rule.

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One method for assessing the interpersonal climate is to ask system members for their perceptions concerning the norms which govern the way people interact. These perceived norms are the "do's" and the "don'ts" which guide the individual in his interactions with others. They are one aspect or indication of the interpersonal climate of a system. If people perceive that a norm of suspicion and mistrust exists in the system, they are apt to behave accordingly, and if enough people have this perception, then a climate of suspiciousness is likely to exist in the system. One question is -- what happens to the person who perceives that others hold such a norm but finds that he cannot abide by it? Is he likely to be satisfied with this state of affairs?

To illustrate further at the system level, if it is perceived that a majority of system members feel that one should not ask others for feedback about their own work but a majority actually feel that this is a good thing to do, then conflict exists in the system. The conflict exists for those individuals who perceive that the norm urges them not to do a thing which they have an inclination to do. The relationships of this kind of conflict with morale and the individual's evaluation of the system were examined in this study. Conflict was defined in terms of the extent to which the individual perceived himself to be conforming to or deviating from a series of "shoulds" and "should nots". Relationships among the variables were predicted through a cognitive consistency theory. (See Brown, 1965, for description of how to use a balance model for predicting conformity and deviation).

Definition of Terms

1. Interpersonal Process Norms are the prescriptions and proscriptions which govern the way members of the system interact.

2. Perceived Conformity and Deviation is the extent to which the individual endorses what he perceives to be the majority opinion with respect to the interpersonal norms in the system. For instance, if a person perceives that a majority (more than 50%) of the system members feel that complete openness in interpersonal relations is a good thing, but he disagrees, then he perceives himself to be deviant with respect to that norm.

3. Attitude Congruency and Incongruency (used to estimate Actual Conformity and Deviation) is the extent to which the individual's own attitudes toward the norms agrees with the attitudes which a majority of system members have toward these norms.

4. Evaluation of the System is the opinion the individual holds for the school system in terms of its goodness or badness.

5. Morale is the degree of satisfaction the individual feels with respect to his relations with other system members and with respect to his job in the system.

Definition of Terms (Continued)

6. Cognitive and Objective Balance: without going into a full description of the cognitive balance model in this paper, a brief description of how cognitive and objective balance and imbalance were defined by means of perceived and actual conformity, and evaluation of the system follows. If a person perceives he is conforming to the norms and evaluated the system highly, he is in positive cognitive balance. If he perceives he is deviating from the norms and has a low opinion of the system, he is in negative cognitive balance. If a person perceives that he is conforming but has a low evaulation of the system, or if he perceives he deviates but has a high evaluation of the system, then he is cognitively imbalanced. The definition of objective balance and imbalance is similar to the above except that actual conformity is substituted for perceived conformity.

Hypothesis

(1) To the extent that cognitive imbalance results in discomfort, a positive relationship between morale and cognitive balance is predicted.

Corollary: Since the operational definition of cognitive balance is in terms of the measures of perceived conformity and evaluation of the system, positive relationships between morale and these variables are predicted.

(2) The cognitive balance model was designed for perceptual data; however, based upon Newcomb's findings, one can expect it to be useful for predicting relationships between objective balance and morale provided the variable of time is taken into account. It is hypothesized that, to the extent that the time a person has spent in the system mediates the relationship between objective balance and morale, the size of the relationship between these variables will increase as time in the system increases.

Corollary: Since objective balance is operationalized, in part, by the variable attitude congruency, it is predicted that time in system will mediate the relationship between this variable and morale.

(3) Studies (See Hornstein, et al, 1968) have shown that the climate of the building within which a person works influences his morale over and above the influence exerted by other factors. For instance, a person's morale is very likely to be negatively influenced by the fact that his building is characterized by low morale and low conformity. It is hypothesized that both individual-level effects and building-level effects are discernible in the relationships which exist between the variables of conformity, evaluation of the system, and morale.

Hypothesis

(4) Since data were available at two points in time, the resolution of imbalance is predictable for those individuals exhibiting this conflict at the initial testing. It is hypothesized that, by reason of the tension generated by the conflict, individuals who are cognitively imbalanced at time 1 will become cognitively balanced at time 2 more frequently than will individuals who are cognitively balanced at time 1 become cognitively imbalanced at time 2.

(5) In an analogous fashion, it is hypothesized that more people will become objectively balanced at time 2 than will become objectively imbalanced.

(6) With respect to morale, it is hypothesized that changes in this variable will correspond to changes in cognitive and objective balance with an increase in morale being associated with becoming balanced and a decrease in morale being associated with becoming imbalanced.

Descriptions of the Samples:

The professional personnel from two suburban school systems on the East Coast provided the data which were used in the present study. These data represent just a small portion of the large pool of data collected for the Cooperative Project in Educational Development. There were 30% random samples of the teachers drawn from the two systems at the initial testing. At the second testing a 78.5% representative sample (n=157) was obtained from system A. In system B a 47% sample (n=174) was obtained and this was representative of the total professional population with the exception that secondary teachers were slightly under-represented.

Procedure

Questionnaires were administered to the respondents in both school systems during the Fall of 1966 and again during the Spring of 1967. The questionnaires were administered on school premises at both testings. They came in the form of two booklets which took approximately 1 to 1½ hours to complete. Correlational analyses were carried out on the data (except in the case of the change predictions) resulting in large numbers of correlations and partial correlations. For the purposes of brevity all of these will not be reported here, rather, summary statements of the results of the analyses will be given for each hypothesis and some statistics will be presented in three tables.

Results

Hypothesis (1)

It was found that as perceived conformity increased, morale increased and, conversely, as perceived deviance went up, morale decreased. Similarly, a high evaluation of the system was associated with high morale and low evaluation with low morale.

Hypothesis (1) (Continued)

Individuals who exhibited positive cognitive balance had higher morale than those who were imbalanced while individuals in negative balance had lower morale than this latter group. (See table 1) All of these relationships were statistically significant at less than the .05 level and provided evidence in support of Hypothesis (1).

TABLE 1

Correlations of Morale with the Independent Variables. These Data Were Used for Testing Hypothesis 1 and 3[a]. (n=329 School Personnel)

Independent Variables	Zero-Order Correlations	Partial Correlations Holding Individual Constant[b]	Partial Correlations Holding Building Constant[c]
Perceived Conformity	.220**	.329**	.193**
Perceived Deviance	-.130*	.171**	-.220**
Evaluation of the System	.245**	.097	.244**
Postive Cognitive Balance	.290**	.285**	.246*
Negative Cognitive Balance	-.242**	-.139	-.299**

*p $<.05$ **p $<.01$

[a] There were 5 measures of morale used in the study all of which showed essentially the same relationships as the measure chosen for display in this table. The cognitive balance correlations are point biserials while the others are Pearson product moment coefficients.

[b] First-order partial correlations with the correlations among individual scores on the variables partialled out of the relationship between building mean scores on the independent variables and individual morale. Note that the partial between deviance and morale is positive and thus opposite from predictions.

[c] Intrabuilding correlations averaged across 14 buildings. According to Blalock (1960), this process has the same effect as partial correlation - i.e., holds the buildings constant - thus, these correlations are directly comparable to those in column 2. Note that the correlation between morale and deviance is as predicted in this case.

Results (Continued)

Hypothesis (2)

When the correlation coefficients between attitude congruency and morale were plotted against time in the system an inverted U-shaped curve resulted. This indicates the tendency for the magnitude of the relationship between attitude congruency and morale to increase as predicted. However, the size of the relationship between these variables began to decrease among persons who had been in the system for more than 10 years until it became zero among those who had been there longest. The correlations between objective balance and morale showed a similar trend but were less striking than the results for attitude congruency. Thus, Hypothesis (2) received only partial support since the decrease in the size of the relationships among those who had been in the system longest was contrary to predictions.

Hypothesis (3)

It was found that an individual's morale was most closely related to his own evaluation of the system and his own perceptions of the extent to which he deviated from the interpersonal norms. For these particular variables the individual effect was statistically stronger than the building effect. On the other hand, the relationships between perceived conformity and morale, and positive cognitive balance and morale were best described in terms of the building within which he worked. That is, an individual's morale was more closely related to building scores on perceived conformity and positive cognitive balance than with his own scores on these variables. (See Table 1).

Hypothesis (4)

Changes in the cognitive balance data showed that, in System A, more people became cognitively imbalanced than balanced, and in System B a greater number became balanced. When the results of the two systems were combined no significant changes were demonstrated. Therefore, this hypothesis was not supported by the data. (See Table 2).

TABLE 2

Changes in Cognitive and Objective Balance in a Panel of 105 School Personnel.

	Post Scores			
	Cognitive		Objective	
Pre Scores	Balance	Imbal	Balance	Imbal
Balanced	35	25	38	13
Imbalanced	24	21	32	22
Chi Squares	<1		8.02	
P Value	n.s.		$<.01$	

Results (Continued)

Hypothesis (5)

In System A more people became objectively balanced than imbalanced but the chi square was not sufficiently large to reject the null hypothesis. In System B, 77% of the individuals who changed became objectively balanced. When the two systems were combined it was found that 71% of those who changed became objectively balanced. Both of these latter findings were significant at less than the .01 level and are clear support for this hypothesis. (See Table 2).

Hypothesis (6)

Individuals who became cognitively balanced showed a corresponding increase in morale which was significant at less than the .05 level. Individuals who became cognitively imbalanced did not show the predicted decrease in morale. Those individuals who became objectively balanced showed a corresponding increase in morale which was significant at less than the .01 level. Those who became objectively imbalanced did not show the predicted decrease in morale. Thus, this hypothesis received only partial support in that people who became cognitively and objectively balanced did show the predicted increase in morale, but those who became imbalanced did not demonstrate the predicted decrease in morale. (See Table 3).

TABLE 3

Changes in Morale as a Function of Changes in Cognitive and Objective Balance Among 105 School Personnel.

Cognitive Balance	Mean Change	N	T	P
Became Balanced	+8.33	21	2.03	<.05
Became Imbalanced	+3.18	23	1.50	n.s.
No Change	+2.91	42	<1	n.s.
Objective Balance				
Became Balanced	+7.08	34	2.96	<01
Became Imbalanced	+6.92	12	1.00	n.s.
No Change	+ .15	39	<1	n.s.

Summary and Conclusions

In the present study it was demonstrated that it is important how the individual perceives himself in relation to the interpersonal norms of a school system. The morale of teachers and other professional personnel in schools co-varies with how they perceive themselves--as conforming to or deviating from the norms. The relationships between morale and perceived conformity and perceived deviance were further explicated when building-level analyses were done. In this case, the individual's morale co-varied most strongly with building scores on perceived conformity, while such was not the case with perceived deviance. This suggests that some of the variance in the relationship between morale and perceived conformity is accounted for by the atmosphere of the building in terms of this latter variable. A person in a building characterized by having a preponderance of individuals with high perceived conformity tended to have higher morale than an individual in a building characterized by low perceived conformity.

The relationship between actual conformity (or attitude congruency) and morale was complicated by the amount of time the person had been in the system. The morale of newcomers to the system and those with relatively long service was unrelated to this variable. It was only individuals who had been in the system not less than one year and not more than ten years whose morale covaried with this variable. It is understandable that the morale of newcomers would be unrelated to this variable since they did not yet know what others' attitudes are. It is very difficult to understand why old timers' morale was unrelated to attitude congruency. Since they have the best chance of making an accurate assessment of other's attitudes, it had been expected that the relationship between the variables would be the strongest in this group. However, this assumption about the accuracy of their perceptions of the attitudes of others was found to be false. Additonal analyses of the data (not presented here) indicated that the longer a person had been in the system, the less accurate their perceptions of attitudes tended to be. The long timers were actually more conforming than they perceived themselves to be. Thus, their morale was more highly related to perceived conformity than in any of the other groups.

Further examination of the data (not presented here) showed that among the newcomers to the system the most important variable seemed to be their evaluation of the system since the highest correlations with morale occurred between these two variables in this group. It is reasonable that people in their first year of a new job would be affected by their perceptions of the goodness or badness of the organization. Assuming a person would take a position only in what seems to be a "good" system, changes in morale would quickly follow upon disillusionment about how "good" it actually is. According to the results of this study, for those who have survived the first year evaluation of the system, although still related to morale, becomes less important.

Summary and Conclusions (Continued)

The predicted resolution of cognitive imbalance did not occur among the people in this study. It seems that such conflict was not strong enough to motivate such resolution. However, there is no doubt that the cognitive conflict did affect these people. First of all, the predicted relationships between cognitive balance--imbalance and morale were found. Secondly, and more important, increases in morale accompanied changes from cognitive imbalance to balance. Although the predicted decrease in morale did not accompany changes from cognitive balance to imbalance, it must be concluded that the cognitive conflict did have an affect, albeit weak, upon the persons in this study.

The predictions with respect to the resolution of objective conflict were confirmed. Also, as with changes in cognitive balance, increases in morale accompanied changes from objective imbalance to balance. Even though decreases in morale did not go along with becoming objectively imbalanced, the results of the study suggest the importance of cognitive and objective conflict for the morale of school personnel.

In general, the results of the study indicate the need for clarifying the interpersonal norms of the system. Given the relationships of perceived conformity and deviance with morale, the tendency for pluralistic ignorance to occur and to increase with the time the persons had been in the system, suggests the need for the norms to be explicated for all members of the system. Periodic assessment of individuals' perceptions and attitudes about the "do's" and don'ts" of interpersonal relations could be fed back to the personnel to accomplish such an explication. In addition, given the relation between morale and the person's evaluation of the system, administrators would be well advised to keep current on these opinions. When the image of the system begins to decline, there is a definite need to get involved with problem-solving activities with system members. There should be meetings between administrators and all professional personnel or, in the case of large systems, representatives from the various sub-systems, for the purpose of making the system a better place to work in. Although the present study did not deal with students' attitudes and opinions, there are good reasons, and certainly some precedence, for involving them in the problem-solving procedures. After all, children are the reason for school systems.

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ABSTRACT
THE RELATIONSHIPS OF SCHOOL SYSTEM INNOVATIVENESS TO SELECTED DIMENSIONS OF INTERPERSONAL BEHAVIOR IN EIGHT SCHOOL SYSTEMS

Technical Report No. 70
by Leo Hilfiker for

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OBJECTIVE OF STUDY

The general objective of this study was to examine the realtionship between school system innovativeness and selected dimensions of interpersonal behavior in eight school systems. It was prepared as a report for the Wisconsin R & D Center which focuses on contributing to a better understanding of cognitive learning by children and youth and to the improvement of related educational practices.

BASIC CONCEPT OF STUDY

The study is based on a theory combining that of informal organizational change (planned change) and that emerging from research on change and innovation in educational settings.

The concept explored is that the degree of innovativeness of a school system will depend upon the character and condition of the interpersonal process norms perceived to exist in that system.

A major premise underlying the study is that transactions between professionals in a school system are influenced and constantly modified by system process norms, and that these norms (openness, trust, etc.) operate to maintain or create a physical climate for change and innovation.

For lack of a well-developed theory linking relationship variables to organizational innovativeness, the writer used a theory presented by Carl Rogers which has considerable relevance to the interpersonal relationship variables and concepts used in the study.

The Roger's concept suggests that the interpersonal relationships that develop in a sub-group of the school system (professional meetings) have an important impact upon the creativity and innovativeness of the members of that group and possibly of the entire system. It states that:

> the climate created by a group leader will affect the output of the group, and
> if a safe and free climate can be established a group will not only be more creative but will enjoy more effective and harmonious interpersonal relationships.

BASIC CONCEPT OF STUDY (Continued)

These concepts of Rogers seem to have an analog in most school situations where the behavior of the principal as leader will have an effect on the creativity of the faculty, and will also affect the social relationships among the faculty members. Rogers implies that once such a process is begun and nurtured it could become cyclical and self-reinforcing. It is possible that the psychological climate may be initially created or maintained by individuals other than the principal, or by groups other than the building faculty. It may be created deliberately or by chance. This study, however, focuses upon only one of these possible combinations, the system principals (leaders), the system faculties (groups), and the faculty meetings as a potential locus for the general establishment of psychological conditions thought to be relevant to interpersonal relationships and innovativeness.

HYPOTHESES (Stated as null hypotheses)

1. There is no relationship between school system innovativeness and interpersonal process norms as measured by the degree of adaptiveness, openness, and trust perceived by the professional staff.

2. There is no relationship between school system innovativeness and the executive professional leadership and social support provided by principals as perceived by the professional staff.

3. There is no relationship between school system innovativeness and interpersonal process norms in faculty meetings, as measured by openness and powerlessness as perceived by faculty members.

ANCILLARY QUESTIONS

a. Is there a relationship between school system innovativeness and interpersonal process norms in administrative council meetings, as measured by openness and powerlessness as perceived by principals?

b. Is there a relationship between school system innovativeness and the degree of satisfaction with the problem-solving adequacy of professional meetings as perceived by professional personnel?

c. Is there a relationship between school system innovativeness and the degree of satisfaction with the amount of time devoted to problem solving in professional meetings as perceived by professional personnel?

d. Is there a relationship between school system innovativeness and expenditures per pupil?

e. Is there a relationship between school system innovativeness and age of professional personnel?

DESIGN AND METHODOLOGY

The population used for the study was made up of the adult population of eight Wisconsin school systems, all used in a long-term study done by the Wisconsin R and D Center. The instruments used were those developed by the National COPED Committee, and sampling procedures dictated by them, i.e., they were administered to a 30% sample of the professional personnel in each of the schools participating.

DESIGN AND METHODOLOGY (Continued)

The instrument was designed by COPED to measure a variety of attitudinal, perceptive, behavioral, and normative social characteristics of professional adults in school systems.

The dependent variable used was school system innovativeness determined by utilizing three separate procedures:

1. A ranking of the innovativeness of school systems participating in the study by a panel of ten experts.
2. A ranking derived from a quantitative accounting of innovations by professional personnel of the school system with the exception of the superintendent.
3. A ranking derived from information procured during a comprehensive structured interview with the superintendent of the system.

FINDINGS OF THE STUDY

Measurement of the Dependent Variable

1. The data indicate that it is possible to obtain a communality of judgment as to the innovativeness of the school systems by utilizing a panel of experts who have broad, but not necessarily intimate, knowledge of the systems. The utilization of this procedure for the purposes of this study appear to be a sound approach, but some doubts exist that the same procedure could be used effectively in states where State Department of Education personnel have only remote connection with local school systems, or where the supervisory functions of such personnel have been largely replaced by consultative assistance on a random basis.
2. The findings related to the second composite ranking by a panel of experts indicated that providing "specific criteria" by which the panel could assess the innovativeness of a school system did not appreciably change their original ranking of that system. Confidence in the original ranking was further enhanced by the fact that a six month period elasped between the two composite rankings of the panel of experts. Replication and further research may determine the relative value of the "generalized impression" and the "specific criteria" approaches to obtaining a measure of school system innovativeness by a panel of experts.
3. The various ranking procedures indicate that a panel of experts chosen from outside the school system, professional personnel indigenous to the system, and the school system superintendent will substantially agree as to the comparative innovativeness of a given system. Further research may indicate which of the three procedures is the most accurate and efficient means of determining system innovativeness.

3

FINDINGS OF THE STUDY (Continued)

The Hypotheses and Ancillary Questions (See Table 1)

1. A significant relationship was found to exist between school system innovativeness and the interpersonal process norms of openness and trust as perceived by the professional personnel of the system. No significant relationship was found to exist between the interpersonal process norms of adaptiveness and school system innovativeness.

2. No significant relationship was found to exist between the executive professional leadership of the principals of a school system, as perceived by their professional staffs, and the innovativeness of that system. The perceived social support given to faculty members by principals was found to have a significant relationship to the innovativeness of the school system.

3. No significant relationship was found to exist between the degree of openness in building faculty meetings and the system innovativeness. No significant relationship was found to exist between the degree of powerlessness in building faculty meetings and system innovativeness.

Question A

A significant relationship was found to exist between school system innovativeness powerlessness in administrative council meetings as perceived by principals. No significant relationship was found to exist between school system innovativeness and openness in administrative council meetings as perceived by principals. Both of the above findings relating to Ancillary Question A should be interpreted with caution because of the small sample used.

Question B

A significant relationship was found to exist between school system innovativeness and problem-solving adequacy of professional meetings as perceived by professional personnel.

Question C

A significant relationship was found to exist between school system innovativeness and the degree of satisfaction with the amount of time devoted to problem solving in professional meetings as perceived by professional personnel.

Question D

No significant relationship was found to exist between school system innovativeness and expenditures per pupil.

Question E

No significant relationship was found to exist between school system innovativeness and the age of professional personnel.

TABLE 1

Correlations of School System Innovativeness with Several Independent Variables (n=8 systems)

Independent Variables	Spearman Rank Order Correlation	One-Tail Probability Level
Adaptiveness	.203	N.S.
Openness	.786	<.02
Trust	.786	<.02
Executive Professional Leadership of Principals	.524	N.S.
Social Support of Principals	.952	<.002
Openness in Faculty Meetings	.095	N.S.
Powerlessness in Faculty Meetings	.453	N.S.
Openness in Admin. Meetings	.048	N.S.
Powerlessness in Admin. Meetings	.929	<.002
Problem-Solving Adequacy of Meetings	.976	<.001
Satisfaction with Problem-Solving of Meetings	.691	<.04
Total Expenditures	.262	N.S.
Instructional Expenditures	.476	N.S.
Current Per Pupil Expend.	.334	N.S.
Age of Prof. Personnel	.286	N.S.

IMPLICATIONS

Change has become a permanent and integral part of modern society. If education is to become a part of the movement and momentum of social change, then more knowledge is needed regarding the effective ways and means of instituting changes and innovations in school systems. Much of the research dealing with innovation in education has utilized variables connected with the means by which innovations were introduced or diffused. Another area of research emphasis has been directed toward the characteristics of innovators. Little attention has been given to the social or psychological characteristics of the receiving system (such as school or school system) and how these characteristics might affect the fate of a given innovation.

The findings reported in this study suggest that certain interpersonal relationship variables, within the context of organizational climate, may be among the most important variables to consider in initiating and maintaining innovations in educational organizations. The long term success of school system innovative efforts may be due, to a greater degree than previously suspected, to the social-psychological state of the system's organizational climate. If it becomes possible to consistently diagnose and evaluate the "state" of a school system's organizational climate, it might be feasible to modify the adaptability of professional personnel and to change or create organizational structures and processes which enhance the possibilities of successful institutionalization of innovations. An instrument designed to provide data appropriate to such change processes, with the ultimate objective of modifying the system, might also aid in identifying conditions contributing to excessive change or unstable conditions. An analysis of such conditions might indicate that the system should achieve or return to a state of equilibrium rather than undertake extensive change efforts.

An instrument which a school system could use to assess the existing state of interpersonal relationships, or a change in those relationships over a period of time, might also furnish diagnostic information which would be of intrinsic value to the staff and to the administration. This might particularly be true of interpersonal process norms and problem-solving norms that characterize professional staff meetings. School system self-study and awareness of the degree of openness, trust, etc. perceived to exist throughout the system could be of considerable assistance to the personnel of a school system in knowing more about themselves and about the potentialities of organization. While the cause and effect relationships of the variables used in the present study are not yet clear, the evidence suggests that future research in the area of interpersonal relationships in school systems may be particularly relevant at the present time for two reasons: Teachers are beginning to work increasingly within a professional group setting as opposed to an isolated self-contained classroom and teachers are beginning to perceive themselves as a professional group capable of problem-solving and self-improvement at higher levels of decision making.

SUMMARY

Basic to the study was the thesis that it is possible to determine the degree to which a school system is innovative and that certain interpersonal process norms exist within a given system which are related to system innovativeness.

The innovativeness of a school system was determined by utilizing three separate procedures:

1. based upon a ranking of the innovativeness of the eight systems participating in the study by a panel of ten experts from the Department of Public Instruction

2. a ranking derived from a quantitative accounting of innovations by professional personnel of a given system with the exception of the superintendent.

3. a ranking derived from information procured during a comprehensive, structured interview with the school superintendent.

These rankings were combined into a composite ranking which was used as the data for the dependent variable, school system innovativeness.

Data for the independent variables came from selected sections of the COPED instrument, the single exception being school system financial data. The general methodological procedure used was to compute mean scores for each independent variable from the raw data by school system. The mean scores were used to assign an appropriate rank to the eight school systems for each of the independent variables. A rank order correlation was then computed using the rankings of the dependent variable, school system innovativeness, and the rankings of each independent variable taken separately.

The major independent variables investigated were interpersonal process norms perceived to exist in the participating school systems, analyzed at three loci: the principal as perceived by the professional staff, the professional teaching staff and the professional staff meetings as a vehicle for school system problem-solving and for the development and integration of collective interpersonal process norms.

Two other independent variables investigated were: the expenditures per pupil and the age of professional personnel in the eight systems.

Among the limitations of the study were the lack of adequate testing for validity and reliability of the COPED instruments used for the study. Also limiting was the size of the population sample, the number of school systems and the smallness of some of these. It is recommended that before larger samples are tested the instruments be redesigned to be more efficiently administered and analyzed. In its present form it tends to be cumbersome and inefficient for the subject and for the researcher. There are also limitations connected with the fact that the school systems were not selected randomly. It is not known how innovative these eight systems are in comparison with a large random sample of systems drawn from a large area. Also it is not known how the participating systems would have ranked in comparison with other systems on the independent variables.

SUMMARY (Continued)

A significant relationship was found to exist between school system innovativeness and interpersonal process norm of trust as perceived by the professional personnel of the system. This finding and the findings regarding the variables of openness and social support appear to support some of the concepts advanced by Carl Rogers and Matthew Miles. The essential argument advanced by Rogers was that if the leader of a group establishes conditions of psychological safety and freedom the group will spontaneously form a greater number of creative products which will be more significantly novel and the group will enjoy more effective and harmonious interpersonal relationships. Miles noted that certain phenomena characterized groups which tend to generate change and innovation. He indicated that such groups can be expected to experience high autonomy and spontaneity with freedom for creative experimentation, high quality problem-solving through increased communication and norms that actively support change. The variable of adaptiveness as used in this study would appear to provide a measure related to the norm of support for change. However, no relationship was found to exist between school system innovativeness and interpersonal process norm of adaptiveness. This finding raises a question of whether individual propensity for change is necessarily reflected at the organization (system) level and, if it is not, what factors would account for such a situation.

ABSTRACT

GROUP INTERACTION AS A MEANS OF INDUCING INNOVATIVE TEACHING IN ELEMENTARY SCHOOLS

Avis Oxhandler Manno, Ed.D.

The traditional pattern for teachers in public schools has been one of working in isolation from each other. That is, though they are sociable and friendly, professional communication, the sharing of professional practices has not been considered a legitimate work activity and has not been encouraged.

Since some research has suggested that there is a relationship between the amount of interaction among teachers which involves talking about their practices, and the amount of innovations they carry on in their classrooms, this research project was set up to provide teachers, for a short experimental period, with administratively sanctioned opportunities to talk with colleagues about their classroom practices, with the expectation that there would be a resulting increase in their innovative teaching.

PURPOSE OF THE RESEARCH

1. To evaluate interaction techniques designed to increase innovation by encouraging teachers to share information about their classroom practices.

2. To test a theoretical model which sought to explicate the group interaction process. What learnings and what social pressures occur when a group of teachers share their experiences with classroom practices? How do the dynamics of the group situation lead to the action of attempting innovations?

DEFINITIONS USED IN THE STUDY

Innovations - Any practice or way of behaving with children which is new to the teacher himself, and which he hopes will improve the learning opportunities and potential of the individual children in his classroom.

Group interaction - A task-discussion among teachers and their principal which focused upon techniques of working with children. Also in the area of interpersonal influence -- the development of social and emotional relationships among teachers and their principals which supported and encouraged innovativeness.

THEORETICAL CONTEXT

The proposed model for the theoretical context was dealt with in two parts; first, the process of the group discussions, and second, a set of outcomes expected to derive from the discussion groups.

Part I - Regular meetings provided for discussing practices, would, it was hypothesized, give opportunities for teachers to compare their own with their colleagues' experiences and competencies; at the same time the principal's participation would enable teachers to compare their performance with the administrator's expressed standards.

Part II - The discussions were expected to lead directly to increased knowledge of colleagues' innovations and in turn to provide the necessary information to make it possible for teachers to set difficulty and utility levels for the innovations described during the discussions. The acquisition of knowledge about new practices, and evaluations of the usefulness and ease of application of such innovations would lead some teachers to attempt innovative techniques.

A second set of outcomes was expected: increased feelings of affiliation among teachers; to draw individuals closer together; to encourage the growth of warm feelings among the members; that comparison of competence with others' and principal's expressed standards would be a motive to change and improve performance.

The third expected outcome was a development of a group norm encouraging innovation.

These three sets of outcomes could be expected to lead teachers to attempt innovative practices.

HYPOTHESES

1. Teachers who participate in a discussion group which focuses on new classroom practices will come to know about a larger number of teaching innovations being used in their schools then will those teachers who discuss unrelated subjects, or those who do not participate in discussion meetings.

2. At the end of a series of discussion group meetings in which his principal participates, the teacher will experience the administrator as:

   (a) knowing more about the teacher's work than he did at the beginning of the discussions, and

   (b) more often making evaluative comments about the teacher's work than he did at the beginning of the discussions.

3. Teachers who participate in a discussion group which focuses on new classroom practices will come to be able to make more definite judgments about the perceived difficulty levels of teaching innovations than will teachers who discuss an unrelated subject, or those who do not participate in discussion meetings.

4. Teachers who participate in a discussion group which focuses on new classroom practices will come to be able to make more definite judgments about the perceived utility of teaching innovations than will teachers who discuss unrelated topics or those who do not participate in discussion meetings.

5. Teachers who participate in a discussion group, no matter what its focus, will report increased warmth and closeness (affiliation) toward other members during the period of participation.

6. After participating in a discussion group which focuses on the use of new ideas (regardless of the content of the new ideas) teachers will show greater acceptance of the norm that it is good to try new ways of doing things even if they fail. They will also perceive that the majority of teachers in their school now have a greater acceptance of this norm.

7. Teachers who participate in a discussion group which focuses on new classroom practices will report a stronger motivation to change their classroom techniques than will those teachers who discuss an unrelated subject, or those who do not participate in discussion meetings.

8. Teachers who participate in a discussion group which focuses on the use of new ideas will attempt more innovations than teachers who do not take part in a discussion group. The content of the innovations which are attempted will reflect the content of the emphasis of the discussions.

SAMPLE

The project was carried out in nine elementary schools in six school districts within a fifty-mile radius of New York City. They were mostly suburban schools, ranging in size from small to large and in pupil socioeconomic status from lower to upper class. Each principal volunteered to have his school take part in the study. Twenty-nine school districts were contacted, group interviews were conducted with all principals in twelve of those districts. Of the sixty or more principals interviewed, nine volunteered to participate in the research project.

All teachers of the nine buildings were required to take part in the experiment. The experimental teachers were chosen from grade levels in the primary and intermediate groupings. Assignment of teachers to the two experimental groups was by random selection. In each of the nine schools, all teachers were assigned to one of the following groups:

Experimental Group I -- the teachers who discussed their classroom practices (approximately one-fourth of the faculty, total n = 49).

Experimental Group II -- teachers who discussed their relationships with parents (approximately one-fourth of the faculty, total n = 44).

Control -- teachers who did not take part in any discussion group (approximately one half of the faculty, total n = 76).

DESIGN OF THE STUDY

The sequence of events for each school followed a similar pattern. First there was a day of training for two teacher-leaders and the principal of each school. Less than a week later the teacher-leaders administered the research questionnaire for the first time to the entire faculty of each building. At this time the principals were asked to complete a two-page questionnaire. One page paralleled the teachers' survey instrument, the second asked for a description of the changes which the principal hoped to see take place as a result of the project.

One week following the administration of the questionnaire, discussion group meetings began for the teachers in the two experimental groups, the first of six sessions. The pattern for these groups consisted of a stimulus exercise followed by discussion. Guide sheets furnished to each participant controlled both the activities which took place and the content of the ensuing discussions.

At the close of each weekly session an evaluation sheet was completed by each participant to collect data on the members' perceptions of how active they had been in contributing to the session, the extent to which they had private thoughts or reservations about what was going on, changes in their feelings of affiliation toward other members, changes in their feelings of optimism, and the amount they felt they had learned about their colleagues' innovations during the meeting.

At the end of the discussion sessions for the experimental groups, the total faculty of the school was given the research questionnaire for the second time. A separate one-page retrospective survey of the participants' changes in feelings of affiliation toward other teachers in their school was also administered. The nine principals again completed their questionnaire and were asked to give specific examples of changes they had seen in their staffs as a result of the project.

Two months later, the teachers' and principals' questionnaires were administered by the teacher-leaders for the third and last time, with the administrative procedure the same as that described for the pretest and post-test.

A booklet containing the most innovative ideas compiled from the teachers' questionnaires was sent, at the end of the project, to each participant along with a letter of appreciation.

RESULTS AND CONCLUSIONS

Part I of the Theoretical Model, Covering Hypotheses 1. and 2.

Results

Classroom results: There was a tendency which was revealed for the classroom group to know about more of their colleagues' practices than either of the other two groups at the time of post-test one, and these results appeared to be due to the differing treatments given to the three groups. Two months later after the end of the experiment, when post-test two was administered, significant differences were no longer found between the teachers in the three groups in amount of knowledge of colleagues' innovations. (See Table 1.)

Across all schools, the number of teachers who knew about one or more of their colleagues' classroom innovations was small. The data indicated that few teachers, even in these suburban, more-innovative-than-average schools, were in effective contact with their colleagues. Apparently, the classroom discussion group sessions increased the amount of mutual knowledge for the members, but this was a relatively small and temporary change in the usual communication pattern.

Parent results: The parent group, at the time of post-test one, apparently knew about more of their colleagues' innovations in ways of working with parents than did the other groups. This knowledge steadily decreased from the pretest to post-test one. Also, there seemed to be little trading of information between the groups and thus little communication about the happenings in the discussion groups among the teachers in these nine buildings.

Hypothesis one was supported by the research data with the additional finding that the content of the knowledge gained about colleagues' activities remained virtually specific to the content discussed during group sessions.

Principal's knowledge of teachers' work: There was no pattern of perceived knowledge common to all principals. It appeared that the administrator's individual style may have been the factor which accounted for significant differences between the scores in the nine buildings, in the classroom discussion groups. In the parent groups also the principals were experienced as knowing about the same amount regarding their teachers' work with parents at the end of the discussion meetings as before, regardless of experimental treatment.

The principals' ratings of their personal knowledge of their teachers' work in the classroom and with parents remained about the same from the pretest to post-test one and post-test two.

Hypothesis two was not upheld. There was no evidence that the principals in this study were perceived by their teachers as knowing more about their teachers' work as a result of the weekly discussions.

Principal's evaluative comments to teachers: Responses from both teachers and principals showed a change in administrators' behavior during the experiment: that they expressed more evaluative comments to their staffs mainly in the meetings of the discussion groups; that they made a larger number of evaluative comments in these situations; and that in their regular contacts outside of meetings, individual principals were perceived as increasing the number of comments made, but their choices of teachers to favor with evaluations followed each administrator's individual pattern. Essentially, this part of hypothesis two was upheld.

Conclusions (Part I of Theoretical Model)

The experimental data upheld the first portion of the theoretical model of the group discussion process. Opportunities for comparison of own with colleagues' experiences occurred in both classroom and parent groups and members learned more about other teachers' innovations than did teachers in the control group.

Principals did not learn more about their teachers' work, according to staff and personal reports. However, an increase took place in the amount of evaluation supplied to teachers by their principals during the meetings. There was no increase in evaluation comments made to the control teachers during regular faculty meetings. Outside of meetings, there was an increase in the number of evaluative comments made to teachers by their principals, but the identify of the group favored by the administrator varied from one building to another.

The communication pattern in the experimental setting was clearly different from the normal communication pattern in these nine schools. Normally, as evidenced by the pretest data, teachers heard rather less about each other's work and received fewer evaluative comments from their principal than they did during the experiment.

The basic condition of providing opportunities for teachers to compare their own with their peers' competencies and their own with their principal's standards was a definite product of the discussion process.

Part II of the Theoretical Model, Covering Hypotheses 3 - 8

Results

Setting Difficulty and Utility Levels, Results: Due to the fact that so few teachers knew about any of their colleagues' innovations, and that an even smaller number evidenced this knowledge on pretested administrations of the questionnaire, it was impossible to provide a legitimate test for the hypothesis.

Affiliation, Results: The hypothesis was upheld. There was a reported increase in feelings of affiliation among group members during the six weeks of discussion meetings, and no such increase in closeness among the teachers in the control condition.

Norm Development, Results: The hypothesis was not upheld. There was no evidence of acceptance by the experimental group of a norm valuing experimentation with new ways of doing things even if they were likely to fail.

Motivation, Results: According to the indicators which were used in the questionnaire, the individuals who participated in the classroom group did not appear to be more strongly motivated to innovate than did the other teachers. The hypothesis was not upheld.

Action, Results: Both portions of the hypothesis were upheld, although the evidence regarding the number of innovations tried by teachers in the experimental groups was interpreted as being somewhat weak. (See Tables 2 and 3.) On the whole, at each administration of the questionnaire, teachers in the classroom group reported themselves as trying more classroom innovations than did members of the other two groups, but this was not true for teachers in all of the nine schools. There was some evidence that only in the buildings where the discussion group sessions had produced more than the average amount of knowledge about innovations, did the teachers actually attempt more practices that were new than their parent and control group colleagues.

Findings Regarding Changes Over Time: The most consistent result of the study reported in this paper was that the significant changes which occurred as immediate outcomes of the experiment did not last for even two months after it was over.

Another plausible explanation for the low scores on post-test two, and a lack of significant differences among the treatment groups at that point in time, was the large number of negative reactions expressed by teachers to taking the questionnaire for the third time. This may have unduly influenced the subjects' responses. The principals continued at the time of post-test two, to see gains in innovativeness among their teachers. If their observations were accurate, the questionnaire did not produce corroborating evidence.

Conclusions (Part II of Theoretical Model)

The major outcome of the group discussion process was expected to be an increase in the number of innovations attempted by the two treatment groups as compared with the controls. Both treatment groups did report themselves as trying slightly more innovations at the time of the first post-test than did the controls. But the results were not entirely conclusive. Weakness of the innovations findings may be attributed to the "outcome" components not developing as predicted. It was certainly apparent that norms encouraging try-out of innovations did not get built during the discussion sessions.

The evidence of growth of internal motives favoring change was less clear. The questionnaire items showed no increase in motivation, but the questions were poorly conceived and unmeasured motives may actually have existed.

Finally, it proved impossible to test the hypothesis that the group discussion process would help increase the teachers' abilities to set difficulty and utility levels for innovations. On the other hand, two predicted "outcomes" of the group discussion process clearly occurred. One was the growth of feelings of affiliation among the members of the experimental groups. The other was the significant increase in the amount of knowledge the teachers gained about their colleagues' experiences with innovations.

The results showed that there were probably three factors which, in combination, were the moving forces in getting teachers to try innovations. These factors were: (a) the enjoyment of each other's company and growing feelings of closeness, (b) the increased knowledge available to the teachers about their colleagues' experiences with new practices, and (c) the teachers' faithful adherence to the discussion guide sheets and willingness to try innovations if directed to do so.

DISCUSSION

Unrealized elements:

To have an adequate test of the hypothesis about difficulty and utility levels, we would need a more sophisticated design, perhaps one which would allow teachers to make judgments of a standard set of taped descriptions of innovations. This might be done with a new but equivalent tape at each measurement point.

The lack of innovative norms developing may have been due to the oblique approach the experimenter used to make the suggestion for creating norms. Alternative approaches: (1) build a data feedback procedure into one discussion session, participants using instruments to assess their personal feelings about trying new classroom practices, then sharing their responses with the rest of the group. All members would then know how their attitudes compared with those of their colleagues. If the results were the same as those in this study, it would become clear that their fellow teachers were more liberal than most members had imagined. In further discussion, the group would be asked to come to an agreement on a norm about innovativeness. If they could not agree, they would be asked to verbalize and clearly define each sub-group's point of view. (2) Maier's "risk technique" -- asking the group at an early session to list all of the negative things which could possibly happen if they tried new classroom methods. They would then be asked to problem-solve how to handle each of the difficulties. In the process, the group would be expected to clarify and agree on a norm regarding the extent of their own willingness to be innovative. One other point affecting norms was that the groups were not voluntary for the teachers, and this would be less than desirable for the outcomes.

It would be useful in future research to test the motive hypothesis more rigorously, by more sophisticated questionnaire items, and by building in a group session devoted to motivation.

There was a basic measurement problem in the reactive effect of filling out the same questionnaire three times. In future research, a solution to the problem of obtaining an accurate baseline from which to measure change might be to administer two pre-tests at six-week intervals prior to the beginning of the experiment. Only the score on the second pre-test would then be used, since it is likely that they would more honestly reflect the teacher's activities and attitudes.

Achieving Long-Term Gains in Teacher Innovativeness:

Some suggestions for a more efficient group technique to assure long-term gains in teacher innovativeness were made by the experimenter:

1) Improve the design of the discussion group sessions toward development of norms valuing try-outs of new practices and motivation to change.

2) Hold discussion group meetings in an interrupted series, say three weekly sessions followed by six to nine weeks without meetings, then another series of three sessions, etc., stretching the effects over an entire year.

3) A longer, more thorough training period for the teacher-leaders. In combination with the discussion series, a school system might experiment with two other ideas:

    1) Creation of a new job category of teacher-leader. This should be a master teacher who has additional training in the behavioral sciences.

2) Acknowledgement of the regular meeting with colleagues, making it a part of the daily routine of teaching, a respected and paid part of the teacher's job.

Table 1 - Mean Number of Colleagues' Classroom Innovations Known

Group	N	Pretest Mean*	Post-test One Mean*	Post-test Two Mean
Classroom	48	.479	.937	.102
Parent	44	.454	.363	.090
Control	74	.378	.297	.118

Innovations which the subject believed were tried by his colleagues in the two weeks prior to the administration of the questionnaire.

*The analysis of the differences between groups for post-test one yielded an F of 3.53 which is significant at less than the .05 level. The groups did not differ significantly at post-test two.

Table 2 - Mean Number of Classroom Innovations Tried in Past Two Weeks (Teachers' Self Reports.)

Group	N	Pretest* Mean	Post-test One* Mean	Post-test Two Mean
Classroom	49	2.102	1.857	1.102
Parent	44	1.704	1.068	1.022
Control	76	1.493	1.199	.999

*The covariance analysis of the differences between groups for post-test one yielded an F of 4.61 which is significant at less than the .05 level. The groups did not differ significantly at post-test two.

Table 3 - Mean Number of Innovations Tried With Parents in Past Two Weeks (Teachers' Self-Reports)

Group	N	Pretest* Mean	Post-test One* Mean	Post-test Two Mean
Classroom	[illegible]	.611	.444	.357
Parent	[illegible]	.400	.750	.294
Control	40	.350	.200	.358

*The covariance analysis of the differences between groups for post-test one yielded an F of 3.22 which is significant at less than the .05 level. The groups did not differ significantly at post-test two.

A STUDY OF THE RELATIONSHIP OF THE LEADERSHIP RATING OF ELEMENTARY SCHOOL PRINCIPALS AND THE ROLE THEY PLAY AS PROBLEM-SOLVERS OR INFORMATION-GIVERS AT FACULTY MEETINGS

(BASED ON THE COPED SURVEY)

by

A. L. Collins

This study, a segment of the Cooperative Project for Educational Development Study (COPED), is based on the effectiveness of elementary school principals and their role as either problem-solvers or information-givers. The effectiveness of the principal was measured by the EPL (Executive Professional Leadership) determined by Gross and Herriott in their work of 1958 - 1960.[1]

Executive Professional Leadership (EPL) was defined as the efforts of an executive of a professionally staffed organization to conform to a definition of his role that stresses his obligation to improve the quality of staff performance.[2]

Problem-Solving was defined as the process of selecting from a number of alternatives those that lead to a desired goal. The alternatives are usually developed by following a prescribed order of steps.[3]

Information-Giving was defined as the reporting of knowledge of facts gained through investigation, observation, study, or instruction.[4]

The COPED sample of EPL consisted of seventy elementary school principals from Massachusetts, Michigan, and New York. The 12 times which went into the final EPL scale were as follows:

The Question: To what extent does your principal engage in the following kinds of behavior?

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[1] Neal Gross and Robert E. Herriott, Staff Leadership in Public Schools: A Sociological Inquiry (New York: John Wiley & Sons, Inc., 1965).

[2] Ibid., p. 22.

[3] Horace B. English, and Ava Champney English, A Comprehensive Dictionary of Psychological and Psychoanalytical Terms (New York: David McKay Company, Inc., 1958), p. 410.

[4] Ibid., p. 261.

Has constructive suggestions to offer teachers in dealing with their major problems.

Displays a strong interest in improving the quality of the educational program.

Gives teachers the feeling that they can make significant contributions to improving the classroom performance of their students.

Helps teachers to understand the sources of important problems they are facing.

Makes teachers' meetings a valuable educational activity.

Considers "what is best for all the children" in his decisions affecting educational programs.

Brings to the attention of teachers educational literature that is of value to them in their jobs.

Maximizes the different skills found in his faculty.

Treats teachers as professional workers.

Gives teachers the feeling that their work is an "important" activity.

Takes a strong interest in my professional development.

Gets teachers to upgrade their performance standards in their classrooms.

The high EPL principals were those individuals whose weighted scores fell in the 56th to the 99th percentile. The low EPL principals were those individuals whose scores fell in the 1st to the 45th percentile. From the 46th to the 55th percentile was maintained as a neutral range, and principals falling into this interval were not classified as either high or low and therefore not utilized in the study. The sample of teachers consisted of 530 participants from the states of Massachusetts, Michigan, and New York.

PURPOSES OF THE STUDY

This study involves three major considerations pertaining to elementary school administration.

The first purpose of the study is designed to determine if there is a relationship between the effectiveness of elementary school principals as perceived by their staffs, and the type of activity (problem-solving or information-giving) they utilize at staff meetings.

Secondly, the study is designed to determine if there is a relationship between the effectiveness of elementary school principals as perceived by their staffs, and the type of activity (problem-solving or information-giving) the principals think the superintendent should involve them in at the meetings they attend under his direction.

Thirdly, the study is designed to determine if there is a relationship between the effectiveness of the elementary school principals as perceived by their staffs, and the type of activity (problem-solving or information-giving) staffs would prefer to be involved in.

The purposes will be accomplished in the following manner:

A. Using the COPED data bank determine the EPL ranking of the principals surveyed. (Adults - Part II - Deck 50)

B. Using the COPED data bank, determine if public school teachers recognize the important components of problem-solving. (Adults - Part I - Deck 48 - Questions 1-37)

C. Using the COPED data bank, determine if public school principals recognize the important components of problem-solving. (Adults - Part I - Deck 48 - Questions 1-37)

D. Show the relationship, if any, of high EPL principals and the involvement of their staff in problem-solving meetings. (Adults - Part I - Deck 48 - Question 38)

E. Show the relationship, if any, of low EPL principals and the involvement of their staff in information-giving meetings. (Adults - Part I - Deck 48 - Question 38)

Subordinate purposes of the study are:

A. Determine the relationship, if any, of what high and low EPL principals think as to what type of activity (problem-solving or information-giving) the superintendent should involve them in at the meetings they attend under his direction. (Adults - Part I - Deck 48 - Question 39)

B. Determine the relationship, if any, of what teachers of high and low EPL principals think should be the activity (problem-solving or information-giving) in regard to their staff meetings. (Adults - Part I - Deck 48 - Question 39)

The null hypotheses pertaining to the purposes of the study are as follows:

1. Teachers do not recognize selected components of problem-solving. (Adults - Part I - Deck 48 - Questions 1-37)

2. Principals do not recognize selected components of problem-solving. (Adults - Part I - Deck 48 - Questions 1-37)

3. There is no statistically significant difference between the high EPL principals and the involvement of their staffs in problem-solving meetings. (Adults - Part I - Deck 48 - Question 38)

4. There is no statistically significant difference between the low EPL principals and the involvement of their staffs in information-giving meetings. (Adults - Part I - Deck 48 - Question 38)

5. There is no statistically significant difference between the EPL of the principal and the type activity (problem-solving or information-giving he thinks his superiors should involve him in at their meetings. (Adults - Part I - Deck 48 - Question 39)

6. There is no statistically significant difference between the staffs of high and low EPL principals and the type activity (problem-solving or information-giving) the teachers think should be the basis of their staff meetings. (Adults - Part I - Deck 48 - Question 39)

FINDINGS

The findings of the study will be reported in relation to the hypothesis stated earlier.

A. Using the COPED data bank determine the EPL ranking of the principals surveyed. (Adults - Part II - Deck 50)

530 teachers participated in the evaluation of the seventy principals used in the EPL rating. Although Gross and Herriott in their study used EPL as a continuous variable running from the relatively lowest (0.00) to relatively highest (4.00), the writer in his research used the EPL as a dichotomous variable. The high EPL principals are those individuals whose weighted scores fell in the 56th to 99th percentile. The low EPL principals are those individuals whose scores fell in the 1st to the 45th percentile.

B. Using the COPED data bank, determine if public school teachers recognize the important components of problem-solving. (Adults - Part I - Deck 48 - Questions 1-37)

Approximately 430 teachers from seventy different elementary schools replied to this section on meetings which was the basis for determining if teachers recognized the selected components of problem-solving.

Using Haiman[1] and Maier's[2] works on problem-solving, the researcher was able to identify ten of the thirty-seven questions located in Adults - Part I - Deck 48 as being definite components of problem-solving. A chi-square test of significance was utilized to determine if there were a relationship between those teachers that stated they spent more than 65 per cent of their time on problem-solving and the ten items selected as components of problem-solving.

The null hypothesis was tested by the chi-square test for k independent samples. The null hypothesis was tested by:

$$X^2 = \sum_{i=1}^{r} \sum_{j=1}^{k} \frac{(Oij - Eij)^2}{Eij}$$

The results were reported at a significance level of $p \overset{-}{<} .05$, .01 or .001.

Table 1, a summary of Tables 2 through 11, represents the statistical analysis pertaining to the first null hypothesis.

TABLE 1

SUMMARY OF TABLES 2 THROUGH 11 IN RELATION TO THE TEN QUESTIONS PERTAINING TO THE FIRST NULL HYPOTHESIS

TABLE	QUESTION	CHI-SQUARE	DEGREES OF FREEDOM	REJECTION REGION
2	1	35.51	5	.001
3	4	43.49	5	.001
4	7	57.17	5	.001
5	9	49.78	5	.001
6	10	28.82	5	.001
7	14	35.87	5	.001
8	23	35.02	5	.001
9	25	50.63	5	.001
10	27	41.25	5	.001
11	29	39.79	5	.001

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[1] Franklyn S. Haiman, Group Leadership and Democratic Action (Cambridge, Massachusetts: Houghton Mifflin Company, 1950 and 1951).

[2] Norman R. F. Maier, Problem-Solving Discussions and Conferences (New York: McGraw-Hill Book Company, Inc., 1963).

Teachers who stated they spent more than 65 per cent of their time on problem-solving at school meetings identified the ten components of problem-solving.

C. Using the COPED data bank, determine if publis school principals recognize the important components of problem-solving. (Adults - Part I - Deck 48 - Questions 1-37)

Seventy teachers from seventy different elementary schools replied to this section on meetings which was the basis for determining if teachers recognized the selected components of problem-solving.

The same ten items related to problem-solving were selected from the thirty-seven questions from Adults - Part I - Deck 48 were used to determine if principals recognized the selected components of problem-solving. Furthermore, the same chi-square test was utilized to determine if there were a relationship between those principals who stated they spent more than 65 per cent of their time on problem-solving.

Table 12, a summary of Tables 13 through 22, represents the statistical analysis pertaining to the second null hypothesis.

TABLE 12

SUMMARY OF TABLES 13 THROUGH 22 IN RELATION TO THE TEN QUESTIONS PERTAINING TO THE SECOND NULL HYPOTHESIS

TABLE	QUESTION	CHI-SQUARE	DEGREES OF FREEDOM	REJECTION REGION
13	1	.38	1	.05
14	4	5.82	1	.001
15	7	13.55	1	.001
16	9	22.63	1	.001
17	10	5.68	1	.05
18	14	7.57	1	.01
19	23	12.15	1	.001
20	25	20.40	1	.001
21	27	5.66	1	.05
22	29	4.87	1	.05

Principals who stated they spent more than 65 per cent of their time on problem-solving at school meetings identified nine of the ten components of problem-solving.

The writer feels that although only nine of the ten components were identified by those principals who spent more than 65 per cent of their time on problem-solving, it still would be prudent to claim that principals recognize what is considered a proper method of problem-solving.

D. Show the relationship, if any, of high EPL principals and the involvement of their staff in problem-solving meetings. (Adults - Part I - Deck 48 - Question 38)

E. Show the relationship, if any, of low EPL principals and the involvement of their staff in information-giving meetings. (Adults - Part I - Deck 48 - Question 38)

These two hypotheses are related, and the results of the third hypothesis (D) can be used conversely to obtain the results of the fourth hypothesis (E).

The hypotheses in the null form could not be rejected at $p < .05$ and, therefore, in relation to this research, it must be assumed that there is no relationship between the Executive Professional Leadership ratings of principals and the type activity (problem-solving or information-giving) they involve their staffs in at school meetings. However, it should be pointed out that 80 per cent of the respondents regardless of EPL stated they spent more than 65 per cent of their time on problem-solving.

A. Subordinate purpose

Determine the relationship, if any, of what high and low EPL principals think as to what type of activity (problem-solving or information-giving) the superintendent should involve them in at the meetings they attend under his direction. (Adults - Part I - Deck 48 - Question 39)

The fifth null hypothesis or subordinate purpose A could not be rejected and, therefore, in relation to this research, it must be assumed that there is no relationship between the EPL of the principals and the type activity (problem-solving or information-giving) they think their superiors should involve them in at their meetings.

Once again, on initially reading the results, one could become alarmed. Looking closer, however, it can be seen that 87.8 per cent of the principals who replied, regardless of EPL, indicated they would prefer to be involved in problem-solving at the meetings they attend with their superiors. Therefore, as a result of this investigation, it appears that elementary school principals, in general, would rather be involved in solving problems while attending meetings with the superintendent than simply receiving information from the higher echelons of the school department.

B. Subordinate purpose

Determine the relationship, if any, of what teachers of high and low EPL principals think should be the activity (problem-solving or information-giving) in regard to their staff meetings. (Adults - Part I - Deck 48 - Question 39)

The sixth null hypothesis or subordinate purpose B was rejected at the $p > .05$ level. Therefore, there is a relationship between the EPL of the principals and the type activity (problem-solving or information-giving) their staffs think should be the basis of their school meetings. The results of the study indicate that teachers working with high EPL principals prefer to be involved in problem-solving; whereas teachers working with low EPL principals prefer to have their school meetings based on receiving information from the principals. Although a previous analysis indicated there was no relationship between the EPL of principals and the type of activity (problem-solving or information-giving) they involve their staffs in at school meetings, there appears to be some quality of high EPL principals that influences their staffs so they would prefer to be involved in problem-solving than simply receiving information at school meetings.

IMPLICATIONS OF INVESTIGATOR'S RESEARCH RELEVANT TO THE ELEMENTARY SCHOOL PRINCIPALS

1. Elementary school principals should realize that their staffs are knowledgeable regarding the components of problem-solving.

2. Regardless of EPL rating, 80.5 per cent of all teachers responding to the questionnaire indicated that their principal was spending more than 65 per cent of staff meeting time on problem-solving.

3. Regardless of EPL rating, 87.8 per cent of the seventy principals responding to the questionnaire indicated they would prefer to be involved in problem-solving more than information-giving at the meetings they attend with their superiors.

4. Teachers working with high EPL principals prefer to be involved more with problem-solving than information-giving; whereas teachers working for low EPL principals prefer to be involved more in information-giving than problem-solving.

IMPLICATIONS FOR THE ELEMENTARY SCHOOL PRINCIPALS IN RELATION TO A REVIEW OF EDUCATIONAL LITERATURE AND RESEARCH

1. Elementary school principals should realize that much of the current literature regarding public school education indicates

that teachers want to be more involved in problem-solving and decision making that is pertinent to their well-being and their professional status.

2. Elementary school principals should realize that a review of literature in the behavioral sciences indicates that decision making performed by groups of knowledgeable and committed individuals is usually more effective than decision making arbitrarily made by an individual or very small group.

3. Elementary school principals should realize that a review of literature in psychology and sociology reveals that one of the methods of maintaining high cohesiveness and morale within a group is to allow them to actively participate in the problem-solving and decision making relevant to the group.

4. Elementary school principals should realize that a review of research and literature indicates that there is a great deal more commitment on behalf of individuals regarding a policy arrived at by a group process than policy developed and determined by an individual or a small group.

GROUP COHESIVENESS AS A DETERMINANT OF GOAL AND REWARD PERCEPTIONS

(BASED ON THE COPED RESEARCH DATA)

by

Christos Daoulas

The underlying theme of this dissertation was that teacher-population groups reflecting opposing polarities in their affective identification with a school system would correlatively perceive goals and rewards differently. From separate scales measuring "morale", "belongingness", and "alienation", a measure of "group cohesiveness" was composed.

Two populations, high cohesive and low cohesive were identified using data emanating from COPED FORM A-3, Page 5 (Deck 41), Questions (72)(10) through (80) (18) inclusively, supplemented by Question (28) (D) in COPED FORM A-10, Page 2 (Deck 53).

In COPED FORM A-3 (DECK 41), teachers have designated their preferred choices of educational objectives to receive priority attention within their school system during the next two years. In this regard, respondents have been directed to give due consideration to attributes of the professional staff in their school system, the character of financial support generally allocated to educational programs, the variable backgrounds of children who attend the school, and the prevailing attitudes which influence the particular sponsorship of instructional functions within the community. It is predicated herein that these responses simultaneously serve to define the teacher's own philosophy insofar as the salient purposes and ends of education are concerned.

There can be no simplistic stereotypes of goal-structure models where school systems are concerned, and a critical need prevails for extensive research associated with the manner in which the perception of goals is mediated by the behavioral stance of role-incumbents within the social system. Within the specific frame of reference governing the purpose of this dissertation, it becomes necessary to separate the COPED teacher-population sample into two categories which reflect diametrically opposed polarities of affective feeling in conjunction with their expressed identification with the school system. It is postulated that these two groups, indicating a variance in need-disposition properties defined in terms of low and high cohesiveness, are related to perceptions of goals.

The selection and preferred ordering of school-goal alternatives, for the particular purpose of design of this dissertation, necessitated a philosophical alignment of school goals into "academic" and "socialization" categories. This definitional division was determined by utilizing two separate "expert panels" (N = 150) of experienced teachers who were non-participants in the COPED study to effect the necessary orientation of the objectives into "academic" and "socialization" profiles. Each "expert panel" utilized a different type of scoring methodology for the purpose of deriving the required division. One method was based upon the discrete assignment of each item with the COPED category of goal-alternatives into segregated collectivities which contain objectives classified either as primarily social-oriented, academic-oriented, or "neutral" in their essential connotation. The other method was predicated upon the sequential placement of each item within the COPED category of goal-alternatives along pre-defined points of gradient scale indicating progressive and varying phases of a socialization-academic orientation along an established continuum of values.

The results emanating from the judgments of these impartial panels concurred without any deviance in the designation of five COPED items as academic-oriented goals, although there was a variance in the particular hierarchical order in which the goal-items in each category were selected. An analogous procedure was adopted in reference to the separation of promotional reward-characteristics which were perceived by teachers as the most instrumental factors governing "getting ahead" within a school system. In this instance, the division of alternative reward-characteristics listed in the COPED questionnaire was to be prescribed in terms of reward-sanctions which were either "intrinsic" or "extrinsic" in their essential connotation. Again, agreement was manifested by the two "expert panels" relative to the designation of four (4) promotional-characteristics as primarily "intrinsic" in nature, and four (4) promotional characteristics as primarily "extrinsic" in nature, although variance did prevail in regard to the particular hierarchical structure in which the specific ranking of individual items was effected within each of the aforesaid categories.

The following educational objectives were designated as primarily academic-oriented:

(A) Improving the quality of student academic achievement at all levels.

(B) Improving attention to basic skills in the first three grades.

(C) Improving children's motivation and desire to learn.

(D) Improving learning opportunities for gifted or talented children.

(E) Increasing the percentage of college attendance by seniors.

The following educational objectives were designated as primarily socialization-oriented:

(A) Improving children's adherence to moral, ethical, and patriotic standards.

(B) Reducing the dropout rate.

(C) Improving discipline and the behavior of "difficult" children.

(D) Improving attention to physical health and safety of students.

(E) Improving learning opportunities for disadvantaged children.

The following promotional reward-characteristics were designated as essentially "intrinsic" in nature:

(A) Quality of work done.

(B) Dependability.

(C) Imaginativeness, inventiveness, creativity.

(D) Quantity of work done.

The following promotional reward-characteristics were designated as essentially "extrinsic" in nature:

(A) How well one is liked by people in the central office.

(B) Seniority.

(C) How well one is liked by his immediate superiors.

(D) Formal Education.

Statistical analyses were computed in the following groups:

GROUP A: Teachers with less than three years of experience in the school building in which the respondent is located.

GROUP B: Teachers with three years or more of experience in the school building in which the respondent is located.

GROUP C: Teachers working at either a nursery, kindergarten, or elementary-grade level.

GROUP D: Teachers working at a secondary-grade level involving either a middle school, junior high school or senior high school.

GROUP E: Teachers whose undergraduate education for the most part has been within either a four-year teacher's college or the teacher preparation unit of a state college.

GROUP F: Teachers whose undergraduate education for the most part has been within a liberal arts college (not part of a university).

GROUP G: Teachers whose undergraduate education for the most part has been within the teacher preparation unit of a university or within some other unit or department of a university.

Hypothesis Number 1.... Teachers manifesting high group-cohesiveness will demonstrate a greater degree of congruency between perceptions associated with "own position" and "superordinate position" in reference to the adoption of preferred priorities in school goals than teachers manifesting low group-cohesiveness.

	Frequency of high congruence in comparative perceptions of priority school objectives.	Frequency of low congruence in comparative perceptions of priority school objectives.
High-cohesiveness 562 teachers	322 (57%)	240 (43%)
Low-cohesiveness 563 teachers	239 (42%)	324 (58%)

N = 1125 df = 1 $x^2 = 24.19$ $\alpha = < .001$

The findings presented in Table 8 indicate that we may accept this hypothesis at a probability level which has more certainty than an alpha of .001.

The data associated with the testing of this hypothesis reveal that fifty-seven (57) per cent of teachers in the "high cohesiveness" category registered frequency-levels of high congruence in their personal selection of priority school objectives towards which the school system should be channeling its resources during the next two years and their comparative perception of the manner in which this preferred ordering of school goals would be effected by the respondent's immediate administrator or supervisor. In contrast, the data indicate that only forty-two (42) per cent of teachers in the "low-cohesiveness" category manifested similar frequency-levels of high congruence in regard to this variable.

In every instance within the collectivity of seven (7) sub-group populations in this study, the differential in comparative percentages is similarly higher in favor of the proportion of teachers within the "high-cohesiveness" category in reference to the variable which is associated with Hypothesis Number 1.

In the seven (7) sub-group populations in this study, acceptable alpha values of significance prevail in five instances and are unacceptably higher than a .05 confidence level in two samples, teachers whose under-graduate work was done for the most part within a liberal arts college or within either a four-year teacher's college or the teacher preparation unit of a state college.

Hypothesis Number 2... Teachers manifesting high group-cohesiveness will demonstrate a greater degree of congruency in their gross selection of socialization-oriented school goals than teachers manifesting low group-cohesiveness.

	High congruence in socialization objectives.	Neutral relationship in socialization objectives.	Low congruence in socialization objectives.
High-cohesiveness 588 teachers	90 (15%)	84 (14%)	414 (71%)
Low-cohesiveness 628 teachers	104 (17%)	89 (14%)	435 (69%)

N = 1216 df = 2 $x^2 = .3586$ $\alpha = > .05$

The findings presented in Table 6 indicate that we cannot reject, at a .01 level of probability, the null hypothesis that no significant difference exists in the relative proportions of "high-cohesiveness" and "low-cohesiveness" teachers who manifest a high level of congruence in the gross selection of socialization-oriented goals as priority objectives towards which the allocation of school-system resources should be directed during the next two years.

The data associated with the testing of Hypothesis Number 2 reveal that fifteen (15) per cent of teachers in the "high-cohesiveness" category registered frequency-levels of high congruence in their personal selection of socialization-oriented objectives as priority school goals while a contrasting seventeen (17) per cent of teachers in the "low-cohesiveness" category manifested frequency-levels of high congruency in regard to this same variable.

In seven (7) sub-group populations, an acceptable alpha value of significance in reference to the projected hypothesis does not prevail in the case of six categories. Herein the alpha value fails to reach significance at the .05 level of probability and we cannot reject the null hypothesis. Only in a single instance (teachers whose undergraduate education for the most part has been within either a four-year teacher's college or the teacher preparation unit of a state college), is there statistical credence at a .05 level of significance that a relatively greater proportion of "high-cohesiveness" than "low-cohesiveness" teachers manifest a high congruence in their selection of socialization-oriented school objectives.

Hypothesis Number 3... Teachers manifesting high group-cohesiveness will demonstrate a greater degree of congruency between perceptions associated with conditions "actually existing" as promotional reward-sanctions and the relevant conditions that "ideally should prevail" in the school system than teachers manifesting low group-cohesiveness.

	Frequency of high congruence in comparative perceptions of promotional characteristics.	Frequency of low congruence in comparative perceptions of promotional characteristics.
High-cohesiveness 518 teachers	330 (64%)	188 (36%)
Low-cohesiveness 543 teachers	244 (45%)	299 (55%)

N = 1061 df = 1 $x^2 = 36.86$ $\alpha = < .001$

The findings presented in Table 9 indicate that we may accept this hypothesis at a probability level which has more certainty than an alpha of .001.

4

The data associated with the testing of this hypothesis reveal that sixty-four (64) per cent of teachers in the "high-cohesiveness" category registered frequency-level of high congruence in their comparative perception of promotional reward-characteristics which "actually count most" and those criteria which "should count the most" in getting ahead within the school system in which the respondent serves. In contrast, only forty-five (45) per cent of teachers in the low-cohesiveness category in reference to the variable associated with Hypothesis Number 3.

In the seven (7) sub-group populations in this study: acceptable alpha values of significance prevail in five instances at .001 level of probability and in one instance at a .01 level of probability, while an unacceptable alpha value fails to reach significance at a .05 level of probability in regard to the sub-group associated with teachers whose undergraduate work for the most part was within either a four-year teacher's college or the teacher preparation unit of a state college.

Hypothesis Number 4... Teachers manifesting high group-cohesiveness will demonstrate a greater degree of congruency in their gross selection of intrinsic reward-sanctions than teachers manifesting low group-cohesiveness.

	Frequency of high congruence in selection of "intrinsic" promotional characteristics.	Frequency of low congruence in selection of "intrinsic" promotional characteristics.
High-cohesiveness 588 teachers	394 (67%)	194 (33%)
Low-cohesiveness 628 teachers	314 (50%)	314 (50%)

N = 1216 $x^2 = 35.4130$ df = 1 $\alpha = < .001$

The findings presented in Table 7 indicate that we may accept this hypothesis at a probability level which has more certainty than an alpha of .001.

The data associated with the testing of this hypothesis reveal that sixty-seven (67) per cent of teachers in the "high-cohesiveness" category registered frequency-levels of high congruence in their personal selection of "intrinsic" promotional reward-characteristics as the prevailing criteria which "actually count most" in getting ahead within the school system in which the respondent serves. In contrast, only fifty (50) per cent of teachers in the low-cohesiveness category manifested high congruence in regard to this same variable.

In every instance within the collectivity of seven (7) sub-group populations in this study, the differential in comparative percentages is similarly higher in favor of the proportion of teachers within the "high-cohesiveness" category in reference to the variable associated with Hypothesis Number 4.

Within the seven (7) sub-group populations in this study: acceptable alpha values of significance prevail in all instances without exception; three alpha values reach significance at a .001 level of probability; two alpha values reach significance at a .01 level of probability; and two alpha values reach significance at a .05 level of probability.

Hypothesis Number 5... The greatest discrepancy or lack of congruence of teachers and the particular stimulus-situation described in the experimental design will be reflected in the responses of teachers manifesting low group-cohesiveness and their perception of "actually existing" promotional reward-sanctions in the school system in contrast with their perception of "desired ideal" promotional reward-sanctions.

The testing of Hypothesis Number 5 is effected by comparing the alpha values of significance as derived in the particular instance of Hypothesis Number 1 and Hypothesis Number 3. In both cases, the data involved in the testing of the projected hypotheses are associated with discrepancy scores reflecting the distance between a teacher's selections from available alternatives and the teacher's appraisal of the manner in which the same choices would reflect new perceptual dimensions of the stimulus-situation within a comparative frame of reference. In the instance of Hypothesis Number 1, this would refer to the comparative alignment of priority school goals as would be effected by the teacher's administrative superior; and in the case of Hypothesis Number 3, this would refer to the comparative perception of promotional reward-characteristics which ideally should count the most in getting ahead within the school system in which the respondent serves.

In reference to Hypothesis Number 1, a chi square determination was computed at one (1) df and represented an alpha value of significance at a .001 level of probability. Therefore, within an evaluative frame of reference of comparative alpha values, no definitive conclusion can be derived since both hypotheses reached a significance level of .001. The findings in testing Hypothesis Number 5 are inconclusive and, therefore, cannot be accepted in verification of the projected hypothesis.

ABSTRACT

A STUDY OF RELATIONSHIPS AMONG SELECTED SCHOOL SYSTEM CHARACTERISTICS AND THE TYPES OF INNOVATIONS ADOPTED BY THAT SCHOOL SYSTEM

William J. Genova

Purpose

The purpose of this study was to examine relationships among teachers' perceptions of selected dimensions of organizational "health" and the types of innovations those teachers reported using regularly. The problem was developed within the conceptual framework of organizational "health," or properties related to the adaptability or innovativeness of the school system. The six organizational "health" measures used as independent variables in this study include:

1. Support for the norm of openness: a quality of interpersonal relationships characterized by acceptance, tolerance, and honesty.

2. Problem-solving adequacy: the school system has well developed structures and procedures for sensing the existence of problems, for inventing possible solutions, for deciding on the solutions, for implementing them, and for evaluating their effectiveness.

3. Problem-solving climate: the effects of the environment on the use or non-use of the problem-solving skills described in "problem-solving adequacy."

4. Communications adequacy: exists when information travels with maximum accuracy, clarity, and ease between persons, groups, and roles at the same and across different levels.

5. Perceived conformity index: is the extent to which an individual endorses what he perceives to be the majority opinion with respect to the interpersonal norms of the system. For instance, if a person perceives that a majority (more than 50%) of the system members feel that complete openness in interpersonal relations is a good thing, but he disagrees, then he perceives himself to be a deviant with respect to that norm.

6. Actual conformity index: is the extent to which the individual's own attitude toward the norms agrees with the attitudes which a majority of system members actually have toward these norms.

The dependent variables consisted of 17 specific innovations, and combinations of the 17 innovations clustered as Innovation Scale A (classroom innovations) and Innovation Scale B (system-wide or building innovations). "Classroom innovations" are more often used by individual teachers, and therefore tend to be adopted non-uniformly in a grade-level, building, or school system. "System wide or building innovations" are usually adopted by a complete organizational unit, therefore requiring the coordinated efforts of the entire unit as in computer scheduling, ungraded classes, and team teaching. The 17 innovations are listed and grouped in Table 1.

TABLE 1

ITEM COMPOSITION OF INNOVATION SCALE A AND SCALE B

Innovation Scale A Item	COPED - DECK	COLUMN
1. pupil participation in classroom teaching	55	30
2. pupils' work in small learning teams	55	34
3. role playing	55	39
4. pupil participation in developing classroom rules	55	50
5. group discussion of problem behavior	55	54
6. involving pupils in community projects	55	58
7. curriculum units on interpersonal relationships	55	62
8. community pool of resource persons	55	66
9. pupils as helpers or tutors of other pupils	55	70
Innovation Scale B		
1. multi-graded classes	56	39
2. team teaching	56	51
3. teacher aids	56	55
4. programmed instruction	56	63
5. flexible scheduling	57	35
6. foreign languages in elementary school	57	43
7. curriculum council	57	51
8. eight MM. sound films	57	63

Methodology

This study deals only with selected questionnaire items collected from 248 teachers in the 15 elementary schools in one urban public school system. A set of questionnaires was administered during October/November 1965 to teachers, administrators, and students of the school system studied. These data were collected before any significant interventions were accomplished by the COPED staff, and were considered pre-test data. This study is concerned only with these "pre-test" or "pre-COPED" base-line data, and does not attempt in any way to measure the effects of the COPED project. The data used in this study are thus considered a "slice" of the usual operations of the school system during the fall of 1965.

Data for independent variables and the dependent variables came from sections of the COPED Instrument package selected by (1) judges' panel, (2) a site visit, and (3) factor analysis. The general methodological procedure was to compute a single score for each teacher for each independent variable. The teachers' reports of their use or lack of use of specific innovations were recorded. Correlation analyses were subsequently made between independent and dependent variables using the individual teacher as the basic unit of analysis.

The instruments used in the present study were designed and written by members of the COPED Instrument Committees. A limited number of the instruments have undergone reliability tests, but in general the COPED package of instruments has not been adequately tested for validity and reliability. The study was limited to all elementary school teachers in one selected urban school system, and the elimination of certain cases (from 248 to 200) renders the sample biased toward those teachers who completed their questionnaire. For these reasons, the findings cannot be generalized beyond the sample studied.

Results

HYPOTHESIS 1. There is no relationship between the two types of innovations (Innovation Scales A and B) adopted by the teachers of the school system and those teachers' perceptions of selected measures of the "health" of the school system; e.g.

(a) support for the norm of openness
(b) trust
(c) inclusion
(d) problem-solving adequacy
(e) problem-solving climate
(f) communications adequacy
(g) perceived conformity index
(h) actual conformity index

Two of the independent variables; i.e., (b) trust and (c) inclusion, were eliminated from the correlational analyses on the basis of low loadings plus insufficient numbers of items. The specific innovations that comprise Innovation Scales A and B are shown in Table 1.

The overall product-moment correlation analysis revealed only two significant relationships between independent and dependent variables. The Perceived Conformity Index is significantly related positively to Innovation Scale A (classroom innovations) at the .01 level, as shown in Table 2. The Actual Conformity Index is significantly related negatively to Innovation Scale B (system-wide or building innovations) at the .05 level, also as shown in Table 2. No other significant relationships were found in this analysis.

TABLE 2

RELATIONSHIP OF TWO TYPES OF INNOVATIONS TO THE TEACHERS' PERCEPTIONS OF SELECTED SCHOOL SYSTEM "HEALTH" MEASURES

ariable Description	Variable Number	1	2	3	4	5	6	7	8
ovation Scale A	1		.203**				.197**		
ovation Scale B	2	.203**						-.180*	
lem-solving Climate	3				.582**				
lem-solving Adequacy	4			.582**					
ort for Openness	5						.379**	.462**	
eived Conformity Index	6	.197*				.379**		.451**	.173
al Conformity Index	7		-.180*			.462**	.451**		
unications Adequacy	8						.173*		

Canonical correlations between the independent and dependent variables demonstrated significant BETAS for: the Perceived Conformity Index with Innovation Scale A (positive) at the .001 level, and the Actual Conformity Index (negative) with Innovation Scale B (Table 3) at the .05 level. These findings corroborate those of the product-moment correlational analysis.

TABLE 3

T-VALUES FOR EACH BETA OF THE SETS OF MULTIPLE R's

Variable Description	Innovation Scale A	Innovation Scale B
Problem-solving Climate	0.91	-1.12
Problem-solving Adequacy	-1.40	1.44
Support for Openness	0.59	-0.33
Perceived Conformity Index	2.78***	1.28
Actual Conformity Index	-1.79	-2.14**
Communications Adequacy	-0.56	-0.78

HYPOTHESIS 2. There is no relationship between the 17 specific innovations (Table 1) adopted by the teachers of the school system and the teachers' perceptions of selected measures of the health of the school system; e.g.,

(a) support for the norm of openness
(b) trust
(c) inclusion
(d) problem-solving adequacy
(e) problem-solving climate

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(f) communications adequacy
(g) perceived conformity index
(h) actual conformity index.

The product-moment correlation analysis between the 17 specific innovations and the six school system characteristics used demonstrated several significant relationships as shown in Table 4.

TABLE 4

PRODUCT-MOMENT CORRELATIONS BETWEEN 17 SPECIFIC INNOVATIONS AND TO TEACHERS' PERCEPTIONS OF SELECTED SCHOOL SYSTEM "HEALTH" MEASURES

Specific Innovation*	Problem-solving Climate	Problem-solving Adequacy	Support for Openness	Perceived Conformity Index	Actual Conformity Index	Communications Adequacy
INNOVA 1						
INNOVA 2						
INNOVA 3			.186*			
INNOVA 4			.187*	.204**		
INNOVA 5				.196*		
INNOVA 6					-.186*	
INNOVA 7	.202*					
INNOVA 8						
INNOVA 9						
INNOVB 1						
INNOVB 2						
INNOVB 3						
INNOVB 4					-.171*	
INNOVB 5						
INNOVB 6					-.235**	
INNOVB 7						
INNOVB 8						

* See Table 1 for the content of these innovation items, which appear in the same order.

Significant relationships were found between:

1. high self-perceived conformity...and...pupil participation in the development of classroom rules

2. high self-perceived conformity...and...group discussion of problem behavior
3. low actual conformity .... and...programmed instruction
4. low actual conformity .... and...foreign language in elementary school
5. low actual conformity .... and...involving pupils in community projects
6. high perceived openness .... and...role playing
7. high perceived openness......... and...pupil participation in developing classroom rules
8. high perceived problem-solving climate................. and...curriculum units on interpersonal relationships

Several relationships among independent variables and among dependent variables exist as shown in Table 4. These relationships reflect the absence of independent factors as shown by the factor analyses, and are not elaborated upon here as they do not relate directly to the hypotheses.

The 6 X 2 canonical matrix and the 6x17 canonical matrix show somewhat different relationships from the product-moment correlations, as would be expected since the former predict the best linear (joint) combinations. However, the small amount of variance accounted for by the variables (range: 2% - 19%) and the low correlation between Innovation Scale A and Innovation Scale B (.203) render the canonical results equivocal.

Conclusions

Only two overall significant relationships between independent and dependent variables were demonstrated. Teachers with high self-perceived conformity to the norms governing interpersonal relations in the system are the teachers who report that they adopt "classroom innovations." Teachers with high actual deviance from the norms of the system are the teachers who report the adoption of "system-wide or building innovations." This does not make sense to the investigator conceptually. One would expect conforming teachers to adopt innovations that come to them primarily by administrative direction or by group consensus, and deviating teachers to reject "system-wide or building" innovations and to innovate on their own.

Light is shed on this apparent contradiction by the correlations between the six school system characteristics and the 17 separate innovations that comprise Innovation Scales A and B (Table 4). Only two specific innovations out of nine in Innovation Scale A are significantly correlated with high self-perceived conformity: "Pupil participation in the development of classroom rules" and "group discussion of problem behavior." The frequency distributions on these items show 71% and 46.5%, respectively, of the teachers questioned indicated that they practice these behaviors regularly. Both practices relate explicitly to "problem behavior" according to "rules" developed in the classroom via "pupil participation." These are the only two items on Innovation Scale A that relate explicitly to pupil behaviors as governed by behavioral norms.

The same teachers who report using these pupil-developed normative-behavior controls regularly with their pupils also see themselves as conforming with the norms they perceive to govern interpersonal relations with other adults in their school system. An apparently consistent conforming mode of behavior practiced by teachers ("sameness") is expected of that teacher's pupils. Allowing pupils to participate in the development of norms that they are expected to conform to is an egalitarian practice. The egalitarian group follows the principal of equal peer relationships, and efforts to reduce individual differences or leadership behavior are paramount.

The teachers' practice of employing an egalitarian mode of regulating pupils' behavior is apparently consistent with their high self-perceived conformity to norms perceived to regulate their behavior with other adults in the school system. The investigator speculates, however, that since egalitarianism counters the expression of individual differences or leadership behavior, the practice of egalitarian behavior control by teachers would be expected to counter the development of individual abilities or leadership potential in children. The practice of egalitarian behavior control also counters evaluation practices that visibly differentiate members, and is apparently inconsistent with the use of "grades," "reading groups" and other practices that explicitly confirm the existence of individual differences in children. In summary, the practice of egalitarian behavior control by teachers may have negative or inhibiting effects on the development of individual abilities or leadership potential in children. Since the data at hand are based on self-reports with no check on what percentage actually allow "pupil participation in the development of classroom rules," the interpretations given here are rendered highly speculative. Controlled experiments that look at relationships between actual practices and actual outcomes would be needed in order to support or refute the interpretation rendered here.

Two specific innovations out of eight in Innovation Scale B are significantly correlated with high, actual deviance: "programmed instruction," and "foreign language in elementary school." In addition, the practice of "involving pupils in community projects" (from Innovation Scale A) was found to be significantly related to high, actual deviance. The frequency distributions on these items show 11.5%, 2%, and 13.5%, respectively, of the teachers questioned indicated that they practice these behaviors regularly. The relationship of the use of these innovations with high, actual deviance seems logically consistent in light of the small percentages of teachers reporting the use of these practives. One would expect such small samples who employ innovations different from the vast majority to be different in some respect. The data does not, however, shed light on why the content of these innovations is related to high, actual deviance from the norms perceived to govern interpersonal relations among adults in the school system.

In summary, the results do support the general notion of a differential relationship among selected school system characteristics and the types of innovations adopted by that school system. In addition, the reported use of specific innovations were more related to certain dimensions of organization "health" than to other dimensions.

Implications

Problems of adapting school systems to forseen and unforseen conditions will continue to itensify in the face of the accelerating pace of change itself. Valid and intelligent applications of behavioral science knowledge, particularly of intervention strategies of changing, will be enhanced if these applications are data-based. More knowledge is needed regarding effective ways and means of institutionalizing mechanisms for continued adaptability and innovativeness in our school systems. Little attention has been given to the "health" characteristics of school systems as organizations, and how these characteristics affect the adoption and durability of particular types of innovations. More conceptual development and research is needed to produce theories of changing, or ways of bringing about change.

The findings reported in this thesis suggest that certain dimensions of organizational "health" are related more to the adoption of certain types of innovations than to other innovations. Efforts to improve the adaptiveness or innovativeness of school systems or other organizations must aim at improving these fundamental social-psychological dimensions of the organization. Particular types of intervention activities; e.g., "management by objectives," "linking pin" structures, "team development," "confrontation meetings," to mention a few, must be applied in organizations according to the particular dimensions of organizational "health" that they exert the most powerful effect on.

The emergency of a technology that can be used to develop such comprehensive data-based intervention strategies for changing will require continued research along the lines pursued in this thesis. Specifically, systematic attention in further research should be given to:

1. the further development of valid and reliable instruments that measure dimensions of school system "health" characteristics.

2. exploring relationships among certain dimensions of school system "health" characteristics and the adoption of particular types of innovations

3. the valid matching of particular intervention strategies for changing with the dimensions of organizational "health" that they have the most productive effects upon.

4. the application and evaluation of the outcomes of data-based intervention strategies for changing in school systems

5. the continual development and application of modified and improved intervention strategies of changing in school systems, based on evaluation data from previous efforts.

ABSTRACT

A STUDY TO DETERMINE THE RELATIONSHIPS THAT EXIST BETWEEN DEPARTMENT HEADS' SUPERVISORY BEHAVIORS AND INNOVATIONS IN SELECTED SECONDARY SCHOOLS IN MASSACHUSETTS

Chris G. Patrinos

Purpose

The primary purpose of this study was to determine the relationships that exist between supervisory behaviors of department heads and innovation in selected secondary schools in Massachusetts, as perceived by teachers and department heads.

Concomitant purposes were to determine:

1. The relationships that exist between the supervisory behavior of department heads and its importance to teachers in innovative schools and in less-innovative schools.

2. (a) The relationship that exists between these supervisory behaviors and the formal education and experience of department heads.

   (b) The relationship that exists between these supervisory behaviors and the situational factors of (1) allotted supervisory time, (2) number of teachers in the department, (3) size of schools, and (4) department heads' salary differential.

Methodology

The Supervisory Behavior Questionnaire was developed and validated. The purpose was to ascertain the use and importance of department heads' supervisory behaviors as rated by teachers and department heads.

The population sampled consisted of department heads and teachers from twenty-four randomly selected public secondary schools in Massachusetts. Since this study dealt with innovation, the selected sample was categorized in four groups: six innovative small schools; six innovative large schools; six less-innovative small schools; and six less-innovative large schools. The innovative status of schools was determined by use of the North Central Association Secondary School Innovation Scale which ascertained the number of innovations found in selected schools. Since there was a need for a broader definition of innovative and less-innovative schools, selected sections of an instrument designed by the Cooperative Project in Educational Development (COPED) were used to ascertain the extent of use of the NCA innovations and the degree of innovativeness found in selected schools, and to make comparisons between the results of the NCA scale and the results of the COPED questionnaire.

Methodology (Continued)

All questionnaire responses were factor analyzed to derive essential factors and to research into variables affecting the factors. The results of the factor analysis indicated that one factor was extracted with a .40 significant loading. The items that loaded heaviest on this factor, labeled "shared leadership", reveal that the content of these items reflect the technique of participatory leadership.

The data received from the questionnaire responses were alalyzed using analysis of variance and covariance to determine whether any significant differences occurred among the schools. From a total of 390 questionnaires distributed to teachers and department heads in stratified, randomly selected secondary schools in October, 1968, 274 were returned. A return of 70.2 per cent was achieved. The response from innovative schools, large (84%) and small (74%), was larger than the return from less innovative schools, large (57%) and small (61%). A tabulation of questionnaires received according to size of schools, large or small, and according to innovative or less-innovative schools is listed in Table 1.

TABLE 1

RETURN OF INNOVATIVE PRACTICE QUESTIONNAIRES

Schools	Number Distributed Large	Number Distributed Small	Number Returned Large	Number Returned Small	Per Cent Returned Large	Per Cent Returned Small
Innovative	125	85	105	63	84.0*	74.1*
Less-Innovative	105	75	60	46	57.1*	61.3*
Sub-totals	230	160	165	109	71.7	68.1
TOTALS	390		274		70.2	

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*Test of the differences in return rates indicated no significant differences.

TABLE 2

Extent and Degree of Innovativeness in Sampled Secondary Schools as Determined by the Responses from the Innovative Practice Questionnaire

School Ident. No.	No. of Innovations		Rate of Useage*	Rate of Effectiveness	Rate of* Teacher Initiated Innovations
	NCA	COPED			
1	14	25	.600	1.000	.800
2	12	24	.791	.654	.789
3	11	26	.654	.588	.764
4	10	25	.840	.524	.714
MEANS	11.75	25.00	.721	.699	.766
5	6	17	.578	.454	.454
6	3	22	.545	.500	.583
7	2	17	.470	.625	.500
8	1	19	.578	.454	.727
MEANS	3.00	18.75	.542	.508	.566

*COPED - Method of rate computation is described below.

Number of Innovations

Table 2 indicates the number of innovations in each school as reported by principals on the Secondary School Innovation Scale (NCA) in the Spring of 1967. In the COPED column in Table 2, the number of innovations is indicated for each school as reported by the teachers and department heads on the Innovative Practice Questionnaire (COPED) in the Fall of 1968. The results indicate that the schools (NCA and COPED) in the innovative category have more innovations than those in the less-innovative category.

Rate of Useage

The rate of useage is the number of innovations in a school actually being used, as reported by the teachers and department heads. The rate was computed by dividing the number of innovations reported, by those innovations reported actually being used by the respondents. The results indicate that the means of the innovative schools are higher than the means of the less-innovative schools. Therefore, innovative schools, as a group, have a higher rate of useage than less-innovative schools.

Effectiveness of Innovations

Respondents were asked to evaluate the innovations with which they were most directly involved. The rate was computed by dividing the number of reported innovations by the number of innovations reported as being valuable and needed. The results show that the means of the innovative schools are higher than the means of the less-innovative schools, and, therefore, teachers in innovative schools report a higher rate of effectiveness of the innovations used than do teachers from less-innovative schools.

Teacher-Initiated Innovations

Teachers and department heads were asked to indicate if the innovations, with which they were directly involved, were centrally initiated (administrative) or classroom initiated (teacher). The rate was computed by dividing the number of reported innovations by the number of innovations reported as being entirely or jointly (with administration) initiated by teachers. The results show that the means of the innovative schools are higher than the means of the less-innovative schools. Therefore, innovative schools, as a group, have a higher rate of teacher-initiated innovations.

Summary

Is the Secondary School Innovation Scale (NCA) an adequate indicator of innovation? Does the Innovative Practice Questionnaire (COPED) discriminate between high and low innovative schools in the same manner as the NCA scale?

Table 2 indicates that schools measured by COPED and the NCA scales have roughly the same gross results. That is, both measures discriminate between high and low innovative schools. One should note, however, that the amount of similarity between scores generated by these two scales is a function of the manner of comparing the two distributions.

What is clearly important is that there is very little rank order relationships between the scores of these two instruments taken from schools within the high group above, or within the low group above. The NCA scale, which ranks schools according to the number of innovations, does not correlate well with scores generated on COPED scales. These latter scales define innovation in qualitative, rather than quantitative terms. For example, all schools with many innovations (NCA) also produce high group mean innovative scores on the COPED scales, but there is a low rank-order relationship among these schools across the several scales. All schools with few innovations (NCA) also have low group mean COPED scores, but the COPED and NCA scores have low rank-order relations. An advantage of COPED, however, is that several measures that strike at the broader significance of innovation are provided, which imply to this writer, greater face validity. Interestingly, these qualitative measures on the COPED scale do not correlate with the measures of numbers of innovation on either the COPED or NCA scales. The relationship between quantity and quality of innovations is clearly not a simple one.

Summary (Continued)

The teachers from innovative schools, as determined by COPED, report a higher rate of useage as compared with the useage rate reported by teachers from less-innovative schools. The rate of innovative effectiveness, on the COPED scale, as evaluated by the teachers and department heads, was higher in the innovative schools as compared with the effectiveness of innovations from less-innovative schools. The COPED scale revealed that teachers from innovative schools reported a higher rate of teacher initiated innovations than those from less-innovative schools.

Conclusions

Based on data revealed in the study, the following conclusions were drawn:

1. Teachers from innovative schools perceive their department heads as providing a greater amount of shared leadership than do teachers from less-innovative schools. Therefore, this finding indicates that greater shared leadership might be significantly related to the innovative status of the school.

2. Department heads from innovative schools perceive themselves as providing a greater amount of shared leadership than do department heads from less-innovative schools.

3. There is no evidence to support the hypothesis that there are differences in the discrepancies between the supervisory behavior of department heads and its importance to teachers in innovative and less-innovative schools, as judged by teachers or department heads.

4. Teachers in large schools judge their department heads more critically and differently in the use of behaviors they feel are most important, than do teachers from small schools.

5. A department head's formal education and experience was not found to be significantly related to shared leadership, as judged by teachers.

6. The number of teachers in a department was not found to be a significantly related to shared leadership, as judged by teachers. That is, the size of the department may have had little effect in the amount of shared leadership the department had provided.

7. The amount of salary differential was found to contribute to a department head's tendency to share leadership, as judged by teachers.

8. A department head's formal education, experience, size of staff, amount of supervisory time, and salary differential were not found to be significantly related to the amount of shared leadership the department heads provided, as judged by themselves.

Conclusions (Continued)

9. The Secondary School Innovation Scale (NCA), and the Innovative Practice Questionnaire (COPED) discriminate adequately between high and low innovative schools. The with-in group ranking produced by both the NCA and COPED scales are different from each other, even though they produce the same group mean differences. The Innovative Practice Questionnaire (COPED) investigates the rates of useage, effectiveness, and teacher-initiated innovations.

ABSTRACT
SOME CHARACTERISTICS OF INNOVATIVE PUBLIC SCHOOL TEACHERS

by

Craig Mosher

This is an exploratory, descriptive study intended to identify some characteristics of innovative public school teachers and investigate the degree to which innovative teachers feel isolated or alienated within their schools. The data for the study were gathered as a part of the Cooperative Project in Educational Development which was a three-year study which involved intervening in school systems using the techniques of organizational development in order to encourage innovation in the schools.

The data used in this study were gathered as baseline measures prior to intervention efforts. 594 teachers in a large industrial city near one of the East coast's major urban centers filled out an extensive questionnaire which provided the data.

Innovative teachers were defined as those who responded (1) that they had tried "some innovations" in their own classrooms during the past year, (2) actually listed an example of an innovation they had tried, and (3) said that the innovation was either "original with me" or, "I got it somewhere else and made major changes." Innovations were described in the questionnaire which the teachers filled out as:

> classroom innovations for improving pupil learning and motivation which you have invented or discovered, and tried in your own classroom. This is not meant to include new programs adopted by the school system, such as modern math, but rather your own classroom innovations.

Teachers who did not meet these criteria were classified, for the purposes of this study, as non-innovative. 25% of the 594 teachers in the school system fell into the innovative category as defined above.

The chief weakness of this procedure and definition is that it relies exclusively on the teachers' own reports of their classroom behavior with no opportunity to determine the validity of the reports. However, 25% is not an unexpectedly high number of innovative teachers so it seems that large numbers of teachers did not falsely claim to be innovative.

Additional support for the adequacy of the definition comes from another question in the instrument which asked, "Have you, within the past year, had some idea for an innovation which you believe would improve the working of your school or school system (beyond your own classroom)?" The teachers who had been classified as innovative on the basis of their reports of classroom innovations said "Yes" significantly (at a level of .001) more often than did their non-innovative colleagues. (See Table 1) Such a result would be expected but the high level of significance supports the adequacy of the definition of the innovative teacher.

Table 1

Have you had an idea for an innovation outside of your classroom?

	Yes	No
Innovative	38%	22%
	43	62
Non-innovative	62%	78%
	69	213

Significant at .01 level, chi square = 9.324, n = 387, d.f. = 1
Note: Percentages are based on column sums. The second figure given in each cell is the number of cases in that cell.

Having thus defined a group of 149 innovative teachers out of a total population of 594, a number of chi square statistics were computed to determine whether the number of innovative and non-innovative teachers was significantly different in the biographical categories: sex, race, age, tenured status, type of teacher training institution, and years of teaching experience. The results are presented below in Tables 2 - 7.

Table 2

	Male	Female
Innovative	32%	20%
	67	68
Non-innovative	68%	80%
	144	276

Significant at the .01 level, chi square = 9.566, n = 555, d.f. = 1
Note: The number of cases in each table varies since not all teachers filled out every item on the questionnaire.

Curiously enough, men were significantly more innovative than women. (See Table 2.) 32% of the male teachers were innovative while only 20% of the females were so classified. The writer hesitates to hazard an explanation for such a difference but it might be that men feel more secure and self-confident in their jobs and are thus more liable to take the risk of using an innovation in their classrooms.

Table 3

Race

	Negro	White
Innovative	24%	23%
	24	90
Non-Innovative	76%	77%
	77	295

Not significant, chi square = 1.

As shown in Table 3, race was not a significant factor. 24% of Negro teachers were innovative while 23% of white teachers were so classified.

Table 4 Age

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60+	NA
Innovative	24%	15%	18%	30%	26%	26%	16%	28%	24%	40%
	19	12	11	16	17	13	7	14	5	22
Non-innovative	76%	85%	82%	70%	74%	74%	84%	72%	76%	60%
	60	66	50	38	49	37	36	36	16	33

Not significant, .10 level, chi square = 14.860, n = 557, d.f. = 9

Age was not quite significant but the trend in the percentage of innovative teachers with increasing age is worth noting. The least innovative teachers were those in the age bracket 25-29 where only 15% were innovative compared to 24% at ages 20-24 and 30% at ages 35-39. This pattern is also seen in Table 7 - teaching experience - as well it might be. It can be postulated that many teachers in the age bracket 25-29 are hoping to obtain tenure and so are more cautious than either younger or older teachers.

Table 5 Tenure Status

	Tenure	Probationary	Non-certified	Other
Innovative	26%	19%	20%	7%
	78	17	16	1
Non-innovative	74%	81%	80%	93%
	222	74	62	13

Not significant, chi square = 4.706, n = 483, d.f. = 3

26% of the tenured teachers in the system were innovative while only 19% of the probationary and 20% of the non-certified teachers were so classified. These differences were not significant. One possible explanation for this pattern is that tenured teachers will be more free to take risks with innovations in their classrooms since they have job security. This variable is also probably confounded with both age and teaching experience.

Table 6 Type of Undergraduate Institution

	No College Training	2 Year Junior College	2-3 Year Normal School	4 Year Tchr. College	Tchr. Prep State College	Tchr. Prep University	Other Department University	Liberal Arts College	Other	NA
Innovative	20%	21%	21%	19%	23%	25%	44%	23%	8%	42%
	11	4	7	32	7	16	14	19	1	23
Non-innovative	80%	79%	79%	81%	77%	75%	56%	77%	92%	58%
	45	15	26	134	23	49	18	65	12	32

Significant at the .02 level, chi square = 21.110, n = 553, d.f. = 9

Teachers who had come out of university programs other than those designed to prepare teachers were significantly more innovative than were teachers from all other types of educational backgrounds. 44% of the university-trained teachers were innovative while the next highest figure was 25% of the teachers who attended a teacher preparatory unit of a university. This difference was highly significant. It would be intriguing to attribute casual relationships to this difference since this data suggests that teacher training programs and teachers colleges may not produce the most innovative teachers. Might the breadth of training obtained in other than teacher training programs in universities be better preparation for training innovative teachers than the conventional education curricula?

Table 7 Years of Teaching Experience

	1-2	3-5	6-10	11-20	21+
Innovative	22%	14%	24%	24%	29%
	23	13	27	21	28
Non-innovative	78%	86%	76%	76%	71%
	83	80	87	68	70

Not significant, p = .19, chi square = 6.153, n = 500, d.f. = 4

The trend in the data for years of teaching experience parallels that for age - as one might expect. The least innovative were those teachers with 3 - 5 years of experience (14% were innovative) while the other categories were relatively constant. These differences did not reach normal limits of statistical significance, however.

A number of questions in the COPED instrument measured isolation and alienation. It seemed to be of interest to see if innovative teachers felt more isolated and alienated from the school than non-innovative teachers. Most of the results were not significant but will be reported so that other investigators need not repeat the fruitless search performed here.

The nine statements given below were rated on a five-point scale: e.g., "I find my job very exciting and rewarding: Always, Almost always, Often, Only sometimes, Almost never." These ratings were grouped so that the first three were considered "Yes" responses and the latter two were "No" responses. Two by Two tables were then constructed to see if innovative teachers differed from non-innovative teachers on the nine statements. The data was also tabulated for all five responses but the results did not differ from the two by two tables given below.

Table 8 "I find my job very exciting and rewarding."

	Yes	No
Innovative	24%	21%
	105	19
Non-innovative	76%	79%
	327	71

Not significant, chi square 1.

It should be noted that 83% of all teachers found their job very exciting and rewarding indicating a high level of satisfaction with their work.

Table 9 "I am just a cog in the machinery of this school."

	Yes	No
Innovative	23%	25%
	36	83
Non-Innovative	77%	75%
	120	253

Not significant, chi square 1.

68% of all teachers did not feel like a cog in the machinery of the school.

Table 10 "I feel involved in a lot of activities that go on in this school."

	Yes	No
Innovative	26%	18%
	91	31
Non-innovative	74%	82%
	256	139

Significant chi square = 3.6086, d.f. = 1, p .10.

67% of all teachers felt involved in school activities but the innovative teachers felt more involved than their non-innovative colleagues to a significant extent.

No plausible explanation for this finding comes to mind unless the innovative teachers are simply more active in the classroom and in the school in general.

Table 11 "I do things at school that I wouldn't do if it were up to me."

	Yes	No
Innovative	24%	24%
	32	90
Non-innovative	76%	76%
	101	290

Not significant, chi square 1.

74% of all teachers felt that they did not get forced into doing things they did not want to do. Again, the school system seems in fairly good shape in this regard.

Table 12 "I really don't feel satisfied with a lot of things that go on in this school."

	Yes	No
Innovative	22%	24%
	32	89
Non-innovative	78%	76%
	114	280

Not significant, chi square 1.

72% of all teachers felt satisfied with most of what went on in the school.

Table 13 "Though teachers work near one another, I feel as if I am on an island all by myself."

	Yes	No
Innovative	22%	24%
	17	104
Non-innovative	78%	76%
	61	331

Not significant, chi square 1.

85% of all teachers felt they were not isolated from other teachers working near them.

Table 14 "In the long run, it is better to be minimally involved in school affairs." (i.e., the school norm in non-involvement.)

	Yes	No
Innovative	36%	21%
	31	87
Non-innovative	64%	79%
	56	331

Significant at .01 level, chi square = 8.0229, d.f. = 1.

83% of all teachers said, no, that the school norm was that it was better to be involved in school affairs but the innovative teachers agreed that the statement accurately described the school norm to a significantly greater extent than did their colleagues.

This evidence suggests that the innovative teachers do feel they are breaking the school norm somewhat. This feeling might make them feel isolated from the other teachers. It is also clear that the innovative teachers are misperceiving the norm since 83% of all teachers felt the norm was for high involvement. It is also possible that the non-innovative teachers are discouraging their innovative colleagues from getting involved - for whatever reasons - and that this accounts for the "misperception" of the innovative teachers.

Table 15 "I have a lot of influence with my colleagues on educational matters."

	Yes	No
Innovative	25%	23%
	53	66
Non-innovative	75%	77%
	158	219

Not significant, chi square 1.

43% of all teachers agreed that they had a lot of influence with their colleagues but the innovative teachers did not feel they had more influence than their non-innovative colleagues. If their perceptions are correct, the diffusion of innovations may be retarded in such a school system.

Table 16 "I feel close to other teachers in this school."

	Yes	No
Innovative	24%	22%
	95	27
Non-innovative	76%	78%
	304	93

Not significant, chi square 1.

77% of all teachers agreed that they feel close to other teachers. This result is consistent with Table 13 where 85% of all teachers did not feel isolated from each other and there were no significant differences between innovative and non-innovative teachers on that question.

In summary, this study resulted in these significant findings: 1) 25% of the teachers in a large urban school system could be classified as innovative, 2) more male than female teachers were innovative, 3) more of the teachers trained in non-teacher-preparatory university programs were innovative than teachers trained in any other type of institution or program, and 4) more of the innovative teachers felt highly involved in school affairs and incorrectly felt that the school norm was for low involvement. Or else the non-innovative teachers were discouraging their involvement. This result suggests that the innovative teachers may have felt - and been - somewhat isolated from the other teachers.

A non-significant trend of note was that the group of teachers 25-35 years of age and with 3-5 years of teaching experience contained fewer innovative teachers than any other age or experience group. A possibily related but also non-significant finding was that a smaller percentage of non-tenured teachers were innovative when compared to tenured and probationary teachers.

DL:PK

ABSTRACT
OPINIONS OF MODEL SCHOOL DIVISION PERSONNEL*

by

Morton H. Shaevitz, Ph.D.**

During 1965-66 the writer was employed as a consultant to the Model School Division, an experimental sub-unit of the Washington, D.C., Public School System. The administration was interested in assessing the attitudes of its personnel regarding current practices and their opinions about the experimental programs that they had participated in. The study was carried out using revised forms of the COPED instruments, then being finalized. The results were presented to the Board of Education and utilized in policy making.

There have been numerous attempts to infer how school system personnel see their situation and what they believe should be changed. The conclusions drawn often reflect the biases of the questioner and are supported by hearsay evidence. Many school system people have daily contact with the real problems of reaching children and their experiences should be considered when deciding what future steps should be taken. If the opinions, attitudes, and beliefs of school personnel regarding school functioning can be discerned, this information can be used to give direction to a planned change effort.

The major questions addressed were:

1. What are the attitudes, opinions and feelings of public school personnel regarding school structure, function and administrative practice?

2. What types of changes do school personnel wish to see instituted?

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*Shaevitz, M.H., Opinions of Model School Division Personnel, Mimeo, Public Schools of the District of Columbia, 73 p.p., June, 1967.

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3. How do school personnel view the various experimental programs with regard to training, goals, implementation and outcomes?

A questionnaire designed to begin answering these questions was administered to more than 900 Washington, D. C. public school system employees in June 1966. The data collected was analyzed to allow comparisons between teachers and administrators. Statistical treatment was restricted to presentation of measures of central tendency and frequency distributions.

RESULTS

Part I

A. What are the goals of this system? What should they be? How successful has this system been in achieving goals?

The goals of the Model School Division were not well differentiated. Major emphases were seen as directed toward giving the average child basic education and cultural enrichment, providing community services and introducing new educational approaches. Only moderate success was achieved. Personnel felt that much more should have been done, but were less certain about what should have had highest priority. On a relative basis, concern was directed toward increasing the student's motivation so that he learns basic skills, proper attitudes, and becomes a good citizen.

B. What administrative practices should be followed?

The respondents were adamant in requesting smaller classes, more guidance services and teachers' having a role in planning. There was also a request for aides with college training and the provision for more vocational training. The concepts of a rigid curriculum and maximum freedom for principals were strongly rejected. Ability grouping was not approved of, nor did they want to use drop-outs as aides. Outside groups should not have a voice in school decisions.

C. How do teachers relate to each other, principals, and supervisors?

Teachers were seen as being friendly, discussing their work, and having relatively high spirits. Admonistrators and teachers differed in their interpretation of subordinate relationships. Supervisors and principals were seen as being much less supportive, helpful, friendly and willing to take suggestions by teachers than by administrators. These differences in interpretation were relatively consistent.

D. What are the pupils like?

They came from impoverished backgrounds, were not too bright, were unmotivated and did not do very well in school. Yet they were seen as being relatively friendly, liking teachers, and neutral in their feelings about school.

E. Who decides what goes on? Who should decide?

It's a closed system and that's how it should remain. Organized pressure groups were seen as having little influence and deserving almost none. Teachers had some say but they should have been included much more than they were. There was a split on the question of parents and pupils: one quarter thought they should be involved, approximately the same number took an opposite stance and half did not venture an opinion.

F. How do you see yourself? How do you see teachers?

Morale was moderately high, and respondents described themselves in positive terms. One meaningful contrast: teachers and administrators both described the teacher in glowing terms. Administrators were adamant in denying that the teacher had no control over what happens in the school. Teachers only moderately disagreed.

G. How do you think parents feel about the schools?

The respondents were hopeful. They believed that parents see the school as a way for their children to achieve success and felt that they believe school personnel are trying. They believed the Model School Division was viewed ambivalently, not a marked success but more than a gesture.

H. If you had full freedom to make changes in this school or in this school system for next year, what three things would you do?

Smaller classes, better equipment, nicer surroundings, and adequate supplies were strongly requested. Teachers also requested more money and security, less nonteaching responsibilities and more recognition. They showed more variability in other areas mentioned. Non-MSD administrators made requests for inservice training programs, upgrading the level of personnel, and increased support staff. Preschool teachers were concerned most with general problems of communication and school structure.

This summary of stated needs and findings led the writer to make the following recommendations:

1. Attempt to reduce student-teacher ratio by hiring additional staff, increasing the amount of team teaching, and using more teacher aides. If droupouts are to be used as aides, an intensive training program to

make teachers more receptive should be initiated.

2. Devise methods for involving teachers in planning and policy making. Attempt to increase communications. The writer sees the laboratory method as a way of achieving these goals.

3. Open channels of communication between the schools and the community. Develop programs to help inform outside groups about the Model School Division. Develop programs to help personnel become more responsive to dialogue with community organizations.

4. Additional funds to purchase supplies must be obtained.

5. A higher level of maintenance service, painting, cleaning, etc., should be attempted.

6. Programs that focus on teacher-student interaction and help develop needed techniques are of high priority. Some thought should be given to increasing parent involvement in the hope that parents might be of help in student motivation and involvement.

Part II

Participants were usually pleased with the programs they were leading. In spite of some difficulties in obtaining supplies, applying the method, and the difficulties of learning rather new techniques, the programs were rated favorably and there was encouragement for continuation. The notion that teachers are highly resistant to change and demand traditional methods was not supported by this data.

They were, however, often critical of the training they had received before the programs were instituted and the general lack of support as they began grappling with the problem of classroom application. This seemed to be an area of general concern and led to some specific recommendations:

1. Continuous assessment of the participants' views of training program should be a component of the program. This would allow modification when it is most helpful--while the program is in operation.

2. Programs which demand follow-up training should be initiated in total or not at all. That is, if a project is seen as needing both a two-week intensive training period and bi-weekly half-day sessions, both parts should be guaranteed or the project should not be initiated.

3. Some method for participants to assess the quality of the follow-up

portion of a program must be developed. It is vital that dissatisfactions be noted systematically so that appropriate modifications can be made.

ABSTRACT

STUDY IN PROCESS

NORMS VS. ATTITUDES AS AN INFLUENCE ON BEHAVIOR IN SCHOOL SYSTEMS

by

Matthew B. Miles

The "planned change" literature makes much of the fact that individual attitudes may be less predictive of behavior in organizations than is the going organizational culture. This view holds that norms regulating interpersonal behavior, in particular, are a primary source of stability and predictability in organizations; most "change agents" make an effort to alter this aspect of organizational culture. (Miles, 1969). Yet empirical data which would show whether norms, as versus individual attitudes, are more potent as behavioral regulators, are few. Answers to this question would be useful to those interested in improving schools, since change strategies which are attitude-focused (e.g., sensitivity training for individuals) differ from those with a norm-changing emphasis (e.g., data feedback with intact organizational groups).

An additional question of interest involves separating out empirically the relative contribution of "individual" and "building-level" effects to the relationships among norms, attitudes, and behavior. Perhaps, for example, an individual in a building where most others share his attitudes is more likely to behave congruently with his attitudes than if he were an "attitudinal deviant" in his setting. Contextual effects of this sort are frequently found in survey data.

The present study began with factor and cluster analysis of norm/attitude data collected from three school systems (35 buildings) in the New York area. The following clusters were identified:

1. Active innovation (vs. conservative withdrawal)
2. Participative concern (vs. indifference)
3. Openness (vs. conflict suppression)
4. Inauthenticity (vs. trust)

The current analysis treats these four clusters (for each of which we have an index of norms, and of attitudes) as independent variables, and relates them to a series of dependent-variable indicators drawn from other parts of the COPED instrument package. The basic questions to be answered are:

a. To what extent do norms and attitudes correlate with behavior predicted to fall within their particular domain (e.g., innovativeness)?

b. Do norms or attitudes predict behavior more closely?

c. Do the above results hold true when building-level and individual effects are separated?

The approach is essentially correlational. The methods to be used in question (c) are those adapted by Hornstein et al (1968).* The study will be complete in April, 1970, and will be submitted for publication in an appropriate journal.

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*Path Analysis or other causal-inference techniques may be employed as well.

INNOVATIVE TEACHING: ITS RELATION TO NORMS AND REWARDS

Tom Stevens

INTRODUCTION

Rewards, norms and behaviors are intimately related in any social system. Norms prescribe certain behaviors, and faithful performance is followed by both intrinsic and extrinsic rewards. This study is an attempt to determine whether this relationship will hold true in a school system where the teacher as role occupant is in many respects isolated in the classroom, with considerable freedom of action within broadly defined limits. The behavior under consideration is the use of innovative classroom practices; this will be examined with emphasis on its relation to norms and rewards for innovative teaching.

For the purposes of this study, innovative teaching will be defined by the use of nine specific classroom practices.[1] These were chosen because they were not content-bound to given grades, but applied equally from kindergarten through grade twelve, and because they were classroom-specific and required no central planning or facilities, or the cooperation of administrators or other teachers. The interest therefore is in the teacher who himself uses a new classroom practice[2], and not those whose innovations reflect the plans of principals or coordinators. Moreover, a teacher was considered innovative whether he had only tried a new practice, or was using it regularly at the time of the study. This liberal criterion was adopted because there may be different dynamics underlying an exploratory trial and the continued use of an innovation. Emphasis here is on the former.

If we consider the average public school as a typical social system, we would expect to find fairly frequent communication between members, both laterally and vertically, and a reasonably good understanding of the system's norms and rules; we would expect most members' behavior to be governed by their understanding of these norms. Further, we would expect most successful system members to have a good working knowledge of the local reward system, that is, what it takes to get ahead. Finally, if we can assume most members are motivated to advance, we would expect their behavior to be guided by the reward system.

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[1] Pupil participation in curriculum planning, pupil participation in classroom teaching, having pupils work in small learning teams, role playing, use of games to aid learning, pupil reactions to classroom climate via questionnaires, pupil participation in developing classroom rules, group discussion of problem behavior, pupils as helpers or tutors of other pupils.

[2] Granted the defining list does not guarantee the teacher will be the initiator, since such practices could be required from above, but an administrative role is not necessary, and individual action is possible on these innovations.

With respect to innovative classroom practices, then, we expect to find more of them in schools where teachers perceive norms supportive of change, and a reward system emphasizing quality of work, imaginativeness, creativity and inventiveness. We would also expect high innovative teachers to have more favorable attitudes toward change and new practices.

Conversely, in low innovative schools, we expect to find a reward system and norms less supportive of change, and less favorable attitudes toward innovation.

HYPOTHESES

These expectations may be stated formally:

1. Teachers in high innovative buildings will perceive a reward system with greater emphasis on quality of work done, imaginativeness, inventiveness and creativity (than will teachers in "low" buildings).
2. Teachers in "high" buildings will endorse such a reward system more than teachers in "low" buildings.
3. Teachers in low innovative buildings will perceive a reward system with greater emphasis on good superior-subordinate relations and seniority (than will teachers in "high" buildings).
4. Teachers in "low" buildings will endorse such a reward system more than teachers in "high" buildings.
5. Teachers in high innovative buildings will perceive to a greater extent norms supportive of (a) questioning well-established ways of doing things, (b) pushing for new ideas, even if they are vague or unusual, and (c) trying out new ways of doing things, even if the outcome is uncertain.
6. Teachers in "high" buildings will personally endorse these norms more than teachers in "low" buildings.
7. Teachers in low innovative buildings will perceive to a greater extent norms supporting (a) being skeptical about accepting "way out" or unusual ideas, and (b) sticking with familiar ways of doing things in one's work.
8. Teachers in "low" buildings will personally endorse these norms more than teachers in "high" buildings.

PROCEDURE

A. COPED[3]

This study is based on data collected during the COPED project, a research and development enterprise involving several school systems and universities.

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[3] Cooperative Project in Educational Development.

These particular data were collected in the Fall of 1966, from a large urban school system in the New York area. This was the first of two comprehensive data collections, and occurred about six months after the early contacts between school and university. Those sections of the questionnaires pertinent to the data analysed here are reproduced in the Appendix.

B. SUBJECTS

The data under analysis were collected from 412 teachers in 14 schools, consisting of twelve elementary schools, one junior and one senior high.[4]

C. INDEX OF INNOVATIVENESS

For this study, schools were classified as either "high" or "low innovative". A building was considered high innovative when over half of its teachers had tried or were using regularly any six of the nine classroom practices listed earlier (footnote 1). This meant that eight schools were "high" and six were "low", the first group consisting entirely of elementary schools and the latter including the two high schools. (There were 146 and 266 subjects in the two groups, respectively.)

RESULTS

The "high" and "low" groups of buildings were compared on 14 variables, corresponding to the eight hypotheses. T-tests revealed clear differences between the groups only in perceptions of the reward system, as indicated in Table 1.

TABLE 1

Perceptions of reward system in "high" and "low" innovative buildings.

System Type	"high"		"low"			
	$\bar{x}$	SD	$\bar{x}$	SD	t	p
Supportive of Innovation	0.79	0.64	0.60	0.66	3.117	.002
Restrictive of Innovation	0.30	0.47	0.40	0.54	-2.017	.05

A reward system supportive of innovation, characterized as emphasizing quality of work done, imaginativeness, inventiveness and creativity, was seen as important to advancement in the "high" buildings significantly more often than in the "low" buildings. (The higher means indicate that a larger proportion of subjects rated the two questionnaire items[5] as first or second in importance for advancement.) In contrast, promotion in "low" buildings was regarded as dependent on seniority and relations with one's superior;[5b] this difference was also significant. Such a reward system is justly described as restrictive of innovation. Hypotheses 1 and 3 were thus confirmed.

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[4] Data were missing from some schools in the system, notably four junior high schools.

[5] Quality of work done: deck 41, column 52. Imaginativeness, inventiveness, creativity: deck 41, column 55

[5b] These items were from deck 41, columns 56 and 58, respectively. Higher means indicate more frequent rating of these as most important for promotion.

In contrast to the between-group differences on perceptions, there was no difference between "high" and "low" groups regarding individual endorsement of reward systems. These results appear in Table 2, and show that Hypotheses 2 and 4 were not confirmed.

TABLE 2

Endorsement of reward system by individuals in "high" and "low" innovative buildings.

	"high"		"low"			
System Type	x	SD	x	SD	t	p
Supportive of Innovation	1.22	0.60	1.11	0.73	1.560	NS
Restrictive of Innovation	0.04	0.20	0.06	0.25	-0.964	NS

Parenthetically, it is worth noting that members of both types of building were much more in favor of a supportive reward system. No t-tests were performed on this difference.

When we look at perceptions of norms (Hypotheses 5 & 7), we find a paradox. While there were clearly perceived differences in reward systems, there are no differences between "high" and "low" groups in perceptions of the norms which one would expect in either a supportive or restrictive climate. (Although two of the five norms came close to revealing significant differences.) Table 3 presents these results. The percentages indicate the average extent of assumed agreement with the norms as described.

TABLE 3

Perceived agreement with norms for innovative behavior in "high" and "low" innovative buildings.

		"high"		"low"			
	Norm	x %	SD	x %	SD	t	p
SUPPORTIVE	Question well-established ways of doing things (1)	38.3	25.4	38.5	24.7	-0.066	NS
	push new ideas, even if vague or unusual (2)	32.2	24.8	34.7	23.6	-0.974	NS
	try new things, although success uncertain (3)	51.7	25.1	46.9	24.5	1.798	.07
RESTRICTIVE	be skeptical about accepting unusual ideas (4)	54.1	26.7	50.5	27.7	1.209	NS
	stick with familiar ways of doing things (5)	54.1	22.7	58.6	21.7	-1.881	.06

It is interesting to note that in both "high" and "low" groups, more support is perceived for the restrictive norms than for the supportive ones. This is particularly striking when we consider the real endorsement which these norms receive. This is indicated in Table 4.

TABLE 4

		"high"		"low"			
	Norm	$\bar{x}$	SD	$\bar{x}$	SD	t	p
SUPPORTIVE	Question well-established ways of doing things	0.49	0.50	0.44	0.50	1.037	NS
	push new ideas, even if vague or unusual	0.42	0.50	0.44	0.50	-0.358	NS
	try new things, although success uncertain	0.66	0.47	0.63	0.48	0.739	NS
RESTRICTIVE	be skeptical about accepting unusual ideas	0.41	0.49	0.37	0.48	0.924	NS
	stick with familiar ways of doing things	0.27	0.44	0.20	0.40	1.678	.09

The group means in Table 4 indicate extent of endorsement of a given norm: the higher the mean, the greater the agreement, since disagreement and "no opinion" was counted as 0 in computing the mean. Since there are no differences between "high" and "low" groups on norm endorsement, we can combine them to illustrate a striking contrast to the data of Table 3. Individual agreement with supportive norms is consistently higher than with restrictive ones, for both groups. This is a direct reversal from the perceptions of norms, which indicate that restrictive practices had more assumed endorsement than supportive ones. Callahan (1968) has discussed this type of pluralistic ignorance with reference to other COPED data.

DISCUSSION

The results indicate that the crucial variable producing innovative classroom behavior is the reward system as perceived by the teacher. This factor appears to govern teacher behavior more than own attitude or perception of norms.[6] But how to explain these different relations between behavior, norms and rewards?

In the high innovative buildings, attitudes and perceptions of the reward system were generally favorable to innovation, while (perceived) building norms were not. This seems contradictory, for norms and rewards are generally related in governing behavior. There are at least two possible explanations.

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[6] Even though the questionnaires asked for perceptions of norms and rewards in the system, it seems reasonable to assume that most respondents would use the building as their point of reference, and actually report building norms and rewards.

Teacher behavior, as noted earlier, is prescribed only within broad ranges. This is particularly true in the classroom where each teacher is usually free to use different methods as long as they produce acceptable results. Furthermore, if a teacher's behavior is monitored at all, this will be done by the principal or other official, not by one's peers. A teacher's classroom behavior is therefore not a shared experience closely guided by well-understood norms. This is particularly true with the innovations considered in this study, for they require a minimum of teacher-teacher or teacher-principal interaction. Therefore, it seems that in some respects, classroom behavior is not subject to building norms, for it is not a shared, group experience, and sanctions do not follow deviation.

A second explanation for this anomalous relation between perceived norms and rewards is the pluralistic ignorance noted earlier. Even if teachers believed their innovative teaching was counternormative, sanctions would not result, for such behavior is not in fact reprehensible to most teachers. Thus "deviations" would not be punished, and the innovative teacher would be left to experiment with apparent impunity.

It seems therefore that some aspects of a teacher's classroom activity are not governed by norms and sanctions except within the widest limits, and thus the reward system becomes the crucial factor in a building shaping teacher behavior.

In the low innovative buildings there is greater congruence between norms and reward system: both are perceived as unfavorable to innovation. Here too there is pluralistic ignorance of others' attitudes; this feature is perhaps most stable in "low" schools where "deviations" (i.e., innovations) without sanction are least likely to occur. In such schools, the dilemma is a personal one: how to advance within a social system unfavorable to the innovations one would like to try? This suggests several possibilities for further research, e.g., on dissatisfaction and morale, transfer rates, relationships, legitimacy of power, etc.

This study has shown that, regardless of own attitudes and perceptions of norms, innovative teaching is a function of the reward system in a school. We have also seen that the classroom teacher is often a lone actor, immune to peer influence and responsible only to a superior, whose power is enhanced by this type of social structure. It seems, therefore, that the villain of this piece is the principal: he dispenses rewards at the building level and also has direct access to classrooms and teacher behavior.

This has important implications for attempts to induce change in schools. The innovative superintendent and board do not have direct control over teacher behavior; any change attempts will obviously need the cooperation and visible encouragement of the principal. He is the key character in the drama and he maintains this role by controlling rewards and access to those below him.[7] While emphasis may vary from system to system, the principal appears to be a crucial determinant of teacher behavior. Future research could explore this by more direct attention to him as personality and role occupant.

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[7] This suggests that an important element in any attempt to change teacher behavior would be to increase lateral interaction in a building.